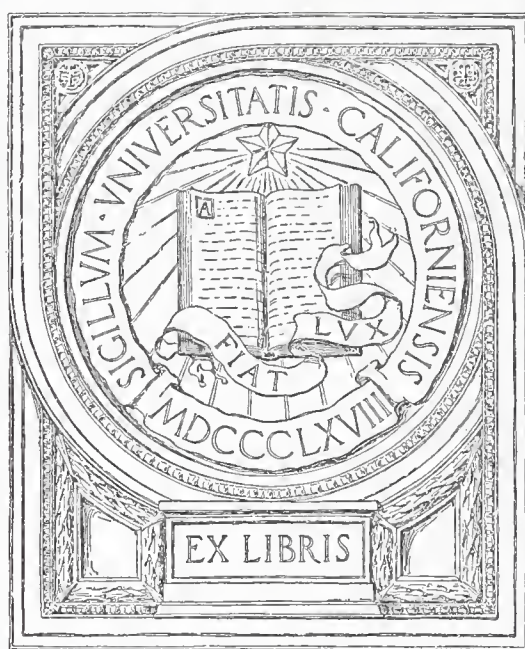
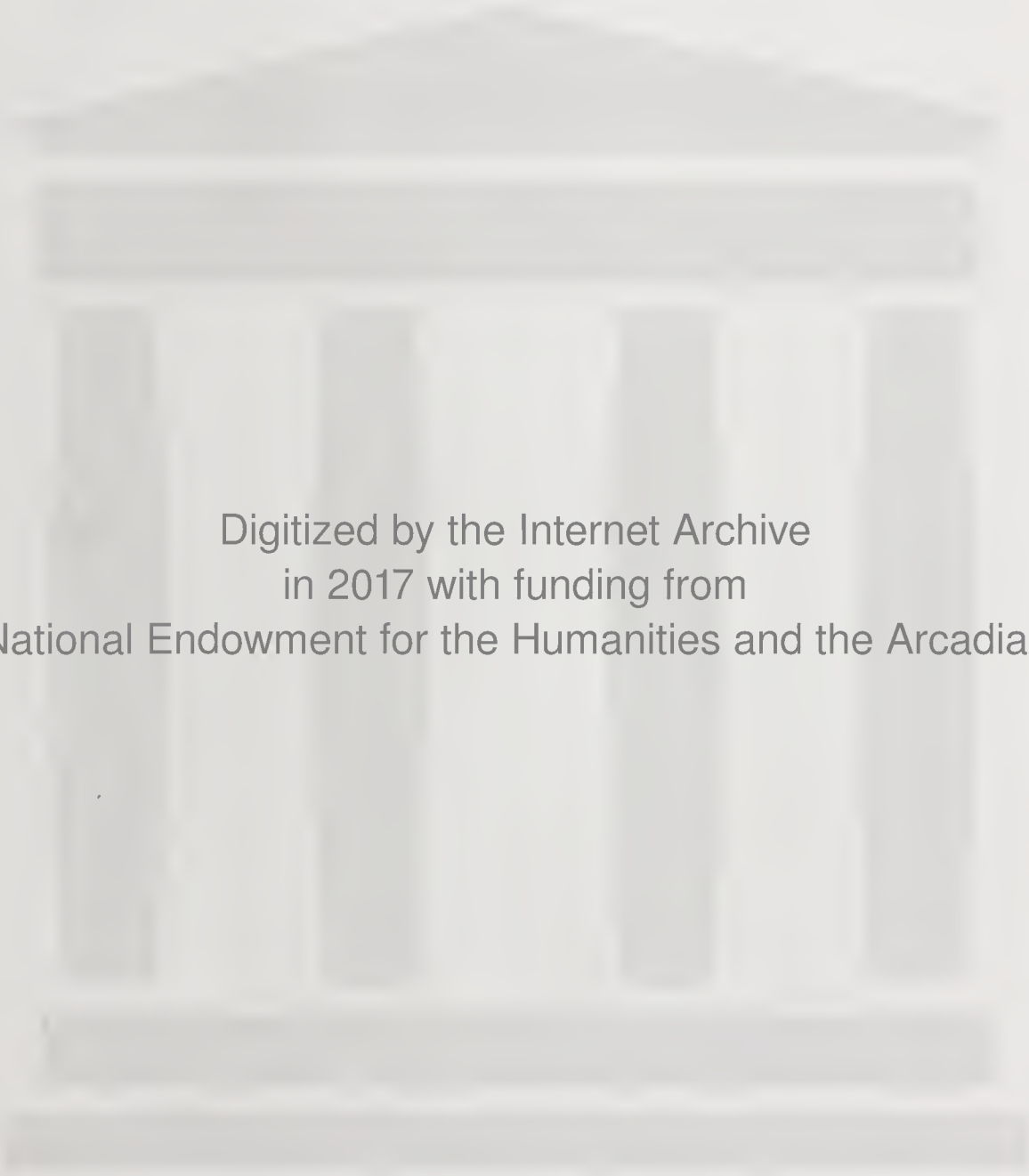


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219

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George H. Kress, Los Angeles.....	1933
Committee on Extension Lectures	
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Committee on History and Obituaries	
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The Secretary	Ex-officio
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Committee on Publications	
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Frederick F. Gundrum, Sacramento.....	1933
The Secretary	Ex-officio
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Joseph Catton, San Francisco.....	1933
The President	Ex-officio
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Committee on Scientific Work	
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Special Committee on Clinical and Research Prizes	
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Index—California and Western Medicine, Volume XXXIII

July to December, 1930

EXPLANATORY NOTES

Arrangement of Index

This index is arranged under the following heads:

- I. Index—Authors.
- II. Index—Subjects.
- III. Index—Editorials.
- IV. Index—Bedside Medicine Articles.
- V. Index—Medicine Today Articles.
- VI. Index—Medical History Articles.
- VII. Index—Miscellany Columns.
- VIII. Index—California Medical Association.
 - (a) General.
 - (b) Component County Societies.
 - (c) Woman's Auxiliary.
- IX. Index—Deceased Members.
- X. Index—Nevada State Medical Association.
- XI. Index—Utah State Medical Association.
- XII. Index—Book Reviews.
- XIII. Index—Report of Medical Examiners.

Key to Abbreviations

- Add.—Address.
 Or.—Original Article.
 C. R.—Case Report
 B. M.—Bedside Medicine.
 Ed.—Editorial.
 M. T.—Medicine Today.
 C. N.—Clinical Notes.
 L. M. H.—Lure of Medical History.

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American Medical Association Quarterly Cumulative Index

Members who wish to consult a general medical index are referred to the Quarterly Cumulative Index of the American Medical Association.

INDEX—AUTHORS

A

- Anderson, J. Mercer—Hay Fever Plants of Utah (Or.), 723.
 Anderson, Nelson P. and Ayres, Samuel Jr.—X-Ray Burns (B. M.), 609.
 Arnold, Ferris—Infections of the Ethmoid Labyrinth (Or.), 591.

- Askey, John Martin—Anemia (B. M.), 890.
 Atkinson, Chas. E.—Advanced Tuberculosis (Or.), 580.
 Ayres, Samuel Jr.—The Kidney Function in Pemphigus. 556.
 Ayres, Samuel Jr. and Anderson, Nelson P.—X-Ray Burns (B. M.), 609.

B

- Baltimore, Louis—Cardiac Diagnosis (M. T.), 900.
 Barnes, H. O.—Esthetic Plastic Surgery (Or.), 588.
 Bancroft, Irving—The Syphilitic Kidney (Or.), 735.
 Barnes, Roger W.—Non-Specific Urethritis in the Female (M. T.), 826.
 Barrow, William H.—The Psychoneurotic Patient and the Clinician (Or.), 670; Cerebral Symptoms in Hypertension (C. N.), 887.
 Bartlett, Edwin I.—The Treatment of Bone Tumors (Or.), 877.
 Beach, Edward W.—Traumatic Rupture of the Kidney (Or.), 494.
 Bell, T. Floyd—Trichomonas Vaginalis Vaginitis (M. T.), 901.
 Bogen, Emil—Pulmonary Hemorrhage (Or.), 473.
 Bolze, Edward and Harris, Franklin I.—Basic Principles Involved in Modern Controllable Spinal Anesthesia (Or.), 652.
 Bonn, Harry K.—Acute Pulmonary Edema During Pregnancy (Or.), 584.
 Brown, Philip King—Peptic Ulcers—Diagnosis and Treatment (Or.), 804.
 Brown, Rexwald—The Business of Medicine (Or.), 505.
 Budge, Edwin S.—Anatomical Variations in Accessory Nasal Sinuses (Or.), 576.
 Burger, Thomas O. and Holder, Hall G.—Varicose Veins—Treatment by Injection of Sclerosing Solutions (Or.), 490.
 Butler, Edmund—Reduction of Fractures and Dislocations Under Local Anesthesia (M. T.), 825.

C

- Carter, Ray A. and Rabwin, Marcus H.—Acute Intestinal Obstruction—Its Diagnosis by the Flat X-Ray Film (Or.), 483.
 Cheney, Garnett and Martins, Samuel—Postencephalitic Paroxysmal Oculogyric Crises (Or.), 724.
 Coffey, R. C.—Radical Treatment of Cancer of the Bladder (Or.), 562.
 Coffey, Walter B. and Humber, John D.—Extract of Adrenal Cortex Substance (Or.), 640.
 Crane, J. J.—Diverticula of the Urinary Bladder in Women (Or.), 572.
 Crummer, LeRoy—The Extra Academic Origin of Medical Specialties, Part I (L. M. H.), 884.
 Curtis, George M.—Hypochloremia (Or.), 625.

D

- Desjardins, Arthur N.—Specific Radiosensitivity of Lymphocytes—Its Significance in Radiotherapy (Or.), 775.

- Dickie, W. M.—Acute Anterior Poliomyelitis Epidemic in California (Or.), 601.

- Durr, Samuel A.—Foreign Bodies in the Cornea (M. T.), 615.

E

- Ebright, George E.—Acute Poliomyelitis (B. M.), 682.
 Emerson, Mark L.—Acute Poliomyelitis (B. M.), 683.
 Emge, Ludwig A. and Hoffman, P. E.—The Influence of Sodium Amytal on Urinary Excretion (Or.), 718.
 Ewer, John N.—Dystocia Due to Fetal Ascites (C. R.), 814.
 Eytinge, C. J.—A Consideration of Certain Phases of Pyelitis (M. T.), 521.

F

- Fairchild, Fred R.—Obstruction Following Gastroenterostomy—Its Mechanical Factors (Or.), 860.
 Farman, Franklin—Destructive "Calculus Disease" (Or.), 663.
 Field, John—Isometric Contraction of Skeletal Muscle (M. T.), 899.
 Frawley, J. M. and Mentzer, Stanley H.—Rudimentary Gall Bladder and Congenitally Absent Common Duct (C. R.), 607.

G

- Gardner, K. D. and Kay, W. E.—Comparative Blood Pressure in the Two Arms (Or.), 578.
 Gehrels, Ernst—Colon Resection (Or.), 568.
 Geyman, Milton J.—Diverticula of the Stomach (C. R.), 813.
 Gottlieb, A.—Prevention of Contractions in Poliomyelitis (M. T.), 688.

H

- Halloran, Chris R.—A Method of Obtaining Blood of Small Infants for Examination (M. T.), 521.
 Hara, H. J.—A Large Pork Bone in the Bronchus (C. R.), 606; Aspiration in Tonsillectomy—Comparative Merits of Posture and Other Factors (Or.), 628.
 Harris, Franklin I. and Bolze, Edward—Basic Principles Involved in Modern Controllable Spinal Anesthesia (Or.), 652.
 Hartman, George W.—Uroselectan—Reactions Accompanying Its Practical Application (Or.), 867.
 Hinman, Frank—The Innervation of the Kidney (M. T.), 617.
 Hoffman, P. E. and Emge, Ludwig A.—The Influence of Sodium Amytal on Urinary Excretion (Or.), 718.
 Holder, Hall G., and Burger, Thomas O.—Varicose Veins—Treatment by Injection of Sclerosing Solutions (Or.), 490.
 Howitt, Beatrice—Poliomyelitis (Or.), 596.
 Humber, John D. and Coffey, Walter B.—Extract of Adrenal Cortex Substance (Or.), 640.
 Hurwitz, Samuel H.—Seasonal Hay Fever—Some Problems in Treatment (M. T.), 520.

I

- Inman, Thomas G.—Mild Mental Disturbances—Prevalent Causes (Or.), 794.

25775

J

Jacobs, S. Nichols and Trauner, Lawrence M.—Compression Fracture of the Fifth Lumbar Vertebra (C. R.), 812.

K

Karshner, Rolla G.—Roentgen Diagnosis in Pulmonary Tuberculosis in Infants and Children (Or.), 565.

Kay, W. E. and Gardner, K. D.—Comparative Blood Pressure in the Two Arms (Or.), 578.

Keeney, Madison J.—Pyocyanic Angina — With Agranulocytosis (Or.), 502.

Kilbourne, E. D.—Amebic Abscess of the Liver—Its Treatment (Or.), 658.

Kilgore, Eugene S.—Angina and Other Precordial Pain—Their Differentiation (Or.), 853.

Kinney, Lyell C.—The County Medical Society—A Business Organization (Or.), 849.

Kruse, Fred H.—Causes of Failure in the Medical Management of Peptic Ulcer (Or.), 550.

Kutzmann, Adolph A.—Urography (M. T.), 824.

L

Leake, Chauncey D.—Chemical Adjuncts to General Anesthesia (Or.), 714; The Excretion of Analgesics and Hypnotics (M. T.), 898.

Lewis, E. R.—Agranulocytic Leukopenia (C. R.), 607.

Light, S. E.—Improved Darkfield Apparatus (C. N.), 681.

Lindsay, H. C.—Diseases of the Tongue (Or.), 729.

Lissac, H.—Recent Endocrinology (Or.) 545.

M

Manwaring, W. H.—Artificial Diphtheria Antitoxins (M. T.), 756; Alleged Superiority of Normal Human Serum Over Convalescent Serum in Poliomyelitis (M. T.), 898.

Martins, Samuel and Cheney, Garnett —Postencephalitic Oculogyric Crises (Or.), 724.

Mathe, Charles Pierre—Safety Measures in the Practice of Urology (Or.), 480.

Maynard, Merlin T. R.—Senile Keratosis (B. M.), 513.

McKenney, Carol and Rhodes, George K.—Traumatic Shock—Its Newer Aspects and Treatment (Or.), 665.

Meland, Orville N. and Soiland, Albert —Intra-oral Cancer and Its Treatment. 559.

Meland, Orville N.—Radium in Hemorrhagic Conditions (M. T.), 755.

Mentzer, Stanley H. and Frawley, J. M.—Rudimentary Gall Bladder and Congenitally Absent Common Duct (C. R.), 607.

Merrill, H. P.—Diagnosis of Allergic Rhinitis (M. T.), 756.

Mettier, Stacy R.—Anemia (B. M.), 891.

Meyer, A. W.—Anatomy Acts of California (Or.), 703.

Michelson, Lewis—Ureteral Pain After Nephrectomy—Treatment by Ureterectomy (Or.), 738.

Miller, Hiram E.—Carotinemia (Or.), 662.

Moore, Ross—Late Syphilis — Treatment with a Single Strain of Malaria (Or.), 796.

Myers, Glenn—The California State Mental Hygiene Survey (Or.), 872.

N

Neff, Mary L.—Psittacosis (M. T.), 523; The Radicular Syndrome Following Infection with Tetanus (C. R.), 742.

O

O'Reilly, B. C-N.—Differentiation Between Yaws and Syphilis (Or.), 881.

P

Peck, J. H.—Rural Obstetrics (Or.), 801.

Pierce, George Warren and O'Connor, Gerald B.—X-Ray Burns. 610.

Powell, Barton J.—Missed Intra-Ocular Foreign Bodies (Or.), 733.

Q-R

Rabwin, Marcus H., and Carter, Ray A.—Acute Intestinal Obstruction—Its Diagnosis by the Flat X-Ray Film (Or.), 483.

Rehfish, John M.—X-Ray Burns (B. M.), 609.

Rethwilm, L. A.—Sodium Isoamylethyl Barbiturate (Or.), 712.

Rhodes, George K. and McKenney, Carol—Traumatic Shock—Its Newer Aspects and Treatment (Or.), 665.

Richards, Robert L.—Importance of Mental Facts in Medicine (M. T.), 689.

Rosenberg, S. L. Millard—Sixteenth Century German Medicine (L. M. H.), 508, 602, 673.

Rowe, Albert H.—Allergic Toxemia and Migraine Due to Food Allergy (Or.), 785.

Rubinstein, Charles—The Treatment of Laryngeal Tuberculosis (M. T.), 825.

Ruggles, Howard E. and Stone, Robert S.—Lymphoblastoma Involving the Stomach—Roentgenologically Considered (Or.), 486.

S

Sanderson, George H.—Treatment of Barbitol Poisoning With Glucose (C. R.), 887.

Schaupp, Karl L.—Resuscitation of the New-Born (Or.), 638.

Scholl, A. J.—Horseshoe Kidney (C. R.), 745.

Scholtz, Moses—Senile Keratosis (B. M.), 514; Toxic Reactions Produced by the Application of Trinitrophenol (Picric Acid) (M. T.), 688; Dermatologic Therapeutics—Basic Principles and Technique (Or.), 769.

Schulz, Raymond L.—A Varicose Vein Injecting Needle (C. N.), 746.

Shaw, E. B. and Thelander, H. E.—Treatment of Poliomyelitis (M. T.), 754.

Smith, Bernhard—Glucose Per Rectum —Evidence of Non-Absorbability (Or.), 857.

Soiland, Albert and Meland, Orville W.—Intra-Oral Cancer and Its Treatment. 559.

Stevens, George M.—Acute Poliomyelitis (B. M.), 682.

Stibbens, F. H.—Pellagra (M. T.), 615.

Stoekton, A. E.—Unexplained Eosinophilia (Or.), 781.

Stone, Robert S. and Ruggles, Howard E.—Lymphoblastoma Involving the Stomach—Roentgenologically Considered (Or.), 486.

Stratmann, Thomas W. K.—Girolamo Fracastoro (1478-1553)—and Syphilis (L. M. H.), 739.

Stratton, Ernest K.—Thallium Acetate (M. T.), 616.

T

Templeton, H. J.—Senile Keratosis (B. M.), 513.

Thelander, H. E. and Shaw, E. B.—Treatment of Poliomyelitis (M. T.), 754.

Thelander, H. E.—Immunization Against Diphtheria with Toxin-Antitoxin (Or.), 798.

Tillotson, Rulon S.—Aberrant Salivary Gland in the Tonsil (C. R.), 744.

Trauner, Lawrence M. and Jacobs, S. Nichols—Compression Fracture of the Fifth Lumbar Vertebra (C. R.), 812.

Twitchell, Edward W.—Spontaneous Rupture of the Spleen—Following Malaria Therapy for General Paresis (C. R.), 512.

U

Updegraff, H. L.—The Problem of the Skin Graft (C. N.), 679.

V-W

Weidman, Fred D.—The Deep Mycoses in Their Surgical Aspects—The Role of Laboratory Diagnosis (Or.), 465; Dermatologic Expressions of Internal Medical Diseases (Or.), 697.

West, Eva—The William Bebb Collection of Prints of Paris Hospitals (L. M. H.), 809.

Wilson, John C.—Fracture of the Neck of the Femur (Or.), 707.

Wolfson, Mast—A New Knee Bandage (C. N.), 608.

Wood, Dorothy A.—Tribromethanol as a Preoperative Narcotic (Or.), 719.

Wyckoff, Harry—Anemia (B. M.), 891.

II

INDEX—SUBJECTS

✓ ✓ ✓

A

Aberrant Salivary Gland in the Tonsil —Rulon S. Tillotson (C. R.), 744.

Accessory Nasal Sinuses—Anatomical Variations of—Edwin S. Budge (Or.), 576.

Acute Intestinal Obstruction — Its Diagnosis by the Flat X-Ray Film—Marcus H. Rabwin and Ray A. Carter (Or.), 483.

Acute Pulmonary Edema During Pregnancy—Harry K. Bonn (Or.), 584.

Advanced Tuberculosis—Chas. E. Atkinson (Or.), 580.

Agranulocytic Leukopenia — E. R. Lewis (C. R.), 607.

A Large Pork Bone in the Bronchus—H. J. Hara (C. R.), 606.

Alleged Superiority of Normal Human Serum Over Convalescent Serum in Poliomyelitis—W. H. Manwaring (M. T.), 898.

Allergic Toxemia and Migraine Due to Food Allergy—Albert H. Rowe (Or.), 785.

Amebic Abscess of the Liver —Its Treatment—E. D. Kilbourne (Or.), 658.

Anatomical Variations of Accessory Nasal Sinuses—Edwin S. Budge (Or.), 576.

Anatomy Acts of California—A. W. Meyer (Or.), 703.

Angina and Other Precordial Pain—Their Differentiation—Eugene S. Kilgore (Or.), 853.

Angina, Pyocyanic—With Agranulocytosis—Madison J. Keeney (Or.), 502.

Artificial Diphtheria Antitoxins — W. H. Manwaring (M. T.), 756.

Aspiration in Tonsillectomy—Comparative Merits of Posture and Other Factors—H. J. Hara (Or.), 628.

B

Barbital Poisoning—Treatment with Glucose—George H. Sanderson (C. R.), 887.

Basic Principles Involved in Modern Controllable Spinal Anesthesia — Franklin I. Harris and Edward Bolze (Or.), 652.

Bladder Cancer—Radical Treatment of —R. C. Coffey (Or.), 562.

Bone Tumors, Treatment of—Edwin I. Bartlett (Or.), 877.

Business of Medicine—Rexwald Brown (Or.), 505.

C

"Calculus Disease" — Destructive — Franklin Farman (Or.), 663.

California State Mental Hygiene Survey—Glenn Myers (Or.), 872.

Cancer, Intra-oral and Its Treatment—Albert Soiland and Orville N. Meland (Or.), 559.

Cardiac Diagnosis—Louis Baltimore (M. T.), 900.

Causes of Failure in the Medical Management of Peptic Ulcer—Fred H. Kruse (Or.), 550.

Cancer of the Bladder—Radical Treatment of—R. C. Coffey (Or.), 562.

Carotinemia—Hiram E. Miller (Or.), 662.

Case Report Conference Proceedings, University of California Hospital. 814, 888.

Cerebral Symptoms in Hypertension—William H. Barrow (C. N.), 887.

Chemical Adjuncts to General Anesthesia—Chauncey D. Leake (Or.), 714.

Colon Resection—Ernst Gehrels (Or.), 568.

Comparative Blood Pressure in the Two Arms—W. E. Kay and K. D. Gardner (Or.), 578.

Compression Fracture of the Fifth Lumbar Vertebra—S. Nichols Jacobs and Lawrence M. Trauner (C.R.) 812.

County Medical Society, The—A Business Organization—Lyell C. Kinney (Or.), 849.

D

Deep Mycoses in their Surgical Aspects —The Rôle of Laboratory Diagnosis —Fred D. Weidman (Or.), 465.

Dermatologic Expressions of Internal Medical Diseases—Fred D. Weidman (Or.), 697.

Dermatologic Therapeutics — Basic Principles and Technique — Moses Scholtz (Or.), 769.

Destructive "Calculus Disease" — Franklin Farman (Or.), 663.

Diagnosis of Allergic Rhinitis—H. P. Merrill (M. T.), 756.

Differentiation Between Yaws and Syphilis—B. C-N. O'Reilly (Or.), 881.

Diphtheria—Immunization Against With Toxin-Antitoxin—H. E. Thelander (Or.), 798.

Diseases of the Tongue—H. C. Lindsay (Or.), 729.

Diverticula of the Urinary Bladder in Women—J. J. Crane (Or.), 572.

Diverticula of the Stomach—Milton J. Geyman (C. R.), 813.

Dystocia Due to Fetal Ascites—John N. Ewer (C. R.), 814.

E

Edema, Acute Pulmonary During Pregnancy—Harry K. Bonn (Or.), 584.

Endocrinology, Recent — H. Lissner (Or.), 545.

Eosinophilia, Unexplained—A. B. Stockton (Or.), 781.

Esthetic Plastic Surgery—H. O. Bames (Or.), 588.

Ethmoid Labyrinth Infections—Ferris Arnold (Or.), 591.

Excretion of Analgesics and Hypnotics —C. D. Leake (M. T.), 898.

Extra Academic Origin of Medical Specialties, The—LeRoy Crummer (L. M. H.), 884.

Extract of Adrenal Cortex Substance —Walter B. Coffey and John D. Humber (Or.), 640.

F

Food Allergy—Migraine and Allergic Toxemia, Due to—Albert H. Rowe (Or.), 785.

Foreign Bodies in the Cornea—Samuel A. Durr (M. T.), 615.

Foreign Body in Bronchus—H. J. Hara (C. R.), 606.

Fracture of the Neck of the Femur—John C. Wilson (Or.), 707.

G

Girolamo Fracastoro (1478-1553)—and Syphilis—W. K. Stratmann-Thomas (L. M. H.), 739.

Glucose Per Rectum—Evidence of Non-Absorbability—Bernard Smith (Or.), 857.

H

Hay Fever Plants of Utah—J. Mercer Anderson (Or.), 723.

Hemorrhage, Pulmonary—Emil Bogen (Or.), 473.

Horseshoe Kidney—A. J. Scholl (C.R.), 745.

Hypochloremia—George M. Curtis (Or.), 625.

I

Immunization Against Diphtheria With Toxin-Antitoxin—H. E. Thelander (Or.), 798.

Importance of Mental Facts in Medicine—Robert L. Richards (M. T.), 689.

Improvised Darkfield Apparatus—S. E. Light (C. N.), 681.

Infections of the Ethmoid Labyrinth—Ferris Arnold (Or.), 591.

Influence of Sodium Amytal on Urinary Excretion—Ludwig A. Emge and P. E. Hoffman (Or.), 718.

Innervation of the Kidney—Frank Hinman (M. T.), 617.

Internal Medical Diseases—Dermatologic Expressions of—Fred D. Weidman (Or.), 697.

Intestinal Obstruction, Acute — Its Diagnosis by the Flat X-Ray Film—Marcus H. Rabwin and Ray A. Carter (Or.), 483.

Intra-oral Cancer and Its Treatment—Albert Soiland and Orville N. Meland (Or.), 559.

Isometric Contraction of Skeletal Muscle—John Field (M. T.), 899.

J-K

Kidney Function in Pemphigus—Samuel Ayres, Jr. (Or.), 556.

Kidney Rupture—Traumatic—Edward W. Beach (Or.), 491.

Knee Bandage, New—Mast Wolfson (C. N.), 608.

L

Late Syphilis — Treatment with a Single Strain of Malaria — Ross Moore (Or.), 796.

Lymphoblastoma Involving the Stomach—Roentgenologically Considered —Howard E. Ruggles and Robert S. Stone (Or.), 486.

M

Mental Disturbances, Mild—Prevalent Causes—Thomas G. Inman (Or.), 794.

Method of Obtaining Blood of Small Infants for Examination—Chris R. Halloran (M. T.), 521.

Mild Mental Disturbances—Prevalent Causes—Thomas G. Inman (Or.), 794.

Missed Intra-Ocular Foreign Bodies—Barton J. Powell (Or.), 733.

Mycoses, The Deep, in Their Surgical Aspects—The Rôle of Laboratory Diagnosis—Fred D. Weidman (Or.), 465.

N

Non-Specific Urethritis in the Female —Roger W. Barnes (M. T.), 826.

O

Obstetrics—Rural—J. H. Peck (Or.), 801.

Obstruction Following Gastroenterostomy—Its Mechanical Factors—Fred R. Fairchild (Or.), 860.

P

Pellagra—F. H. Stibbens (M. T.), 615.

Pemphigus—The Kidney Function in—Samuel Ayres, Jr. (Or.), 556.

Peptic Ulcer—Causes of Failure in Medical Management—Fred H. Kruse (Or.), 550.

Peptic Ulcers—Diagnosis and Treatment—Philip King Brown (Or.), 804.

Plastic Surgery—Esthetic — H. O. Bames (Or.), 588.

Poliomyelitis—Epidemic in California —W. M. Dickie (Or.), 601.

Poliomyelitis—Beatrice Howitt (Or.), 596.

Poliomyelitis, Treatment of—E. B. Shaw and H. E. Thelander (M. T.), 754.

Poliomyelitis Contractures—Prevention —A. Gottlieb (M. T.), 688.

Postencephalitic Paroxysmal Oculogyric Crises—Garnett Cheney and Samuel Martins (Or.), 724.

Prevention of Contractures in Poliomyelitis—A. Gottlieb (M. T.), 688.

Problem of the Skin Graft—H. L. Updegraff (C. N.), 679.

Psittacosis—Mary L. Neff (M. T.), 521.

Psychoneurotic Patient and the Clinician—William H. Barrow (Or.), 670.

Pulmonary Hemorrhage—Emil Bogen (Or.), 473.

Pulmonary Tuberculosis in Infants and Children—Roentgen Diagnosis—Rolla G. Karshner (Or.), 565.

Pyelitis—A Consideration of Certain Phases of—E. J. Eyttinge (M. T.), 521.

Pyocyanic Angina — With Agranulocytosis—Madison J. Keeney (Or.), 502.

Q-R

- Radical Treatment of Cancer of the Bladder—R. C. Coffey (Or.), 562.
- Radium in Hemorrhage Conditions—Orville N. Meland (M. T.), 755.
- Radicular Syndrome Following Infection with Tetanus—Mary Lawson Neff (C. R.), 742.
- Recent Endocrinology—H. Lisser (Or.), 545.
- Reductions of Fractures and Dislocations Under Local Anesthesia—Edmund Butler (M. T.), 825.
- Resuscitation of the New-Born—Karl L. Schaupp (Or.), 638.
- Roentgen Diagnosis of Pulmonary Tuberculosis in Infants and Children—Rolla G. Karshner (Or.), 565.
- Rudimentary Gall Bladder and Congenitally Absent Common Duct—J. M. Frawley and Stanley H. Mentzer (C. R.), 607.
- Rural Obstetrics—J. H. Peck (Or.), 801.

S

- Safety Measures in the Practice of Urology—Charles Pierre Mathe (Or.), 480.
- Seasonal Hay Fever—Some Problems in Treatment—Samuel H. Hurwitz (M. T.), 520.
- Senile Keratoses—(B. M.), 513.
- Sixteenth Century German Medicine—S. L. Millard Rosenberg, Part I, 508; Part II, 602; Part III, (L. M. H.), 673.
- Sodium Isoamylethyl Barbiturate—L. A. Rethwilm (Or.), 712.
- Specific Radio Sensitiveness of Lymphocytes—Its Significance in Radiotherapy—Arthur U. Desjardins, (Or.), 775.
- Spinal Anesthesia—Basic Principles Involved—Franklin Harris and Edward Bolze (Or.), 652.
- Spontaneous Rupture of the Spleen—Following Malaria Therapy for General Paresis—Edward W. Twitchell (C. R.), 512.
- Syphilis, Differentiation Between Yaws and—B. N-C. O'Reilly (Or.), 881.
- Syphilis, Late—Treatment with a Single Strain of Malaria—Ross Moore (Or.), 796.
- Syphilitic Kidney, The—Irving Bancroft (Or.), 735.

T

- Thallium Acetate—Ernest K. Stratton (M. T.), 616.
- Tongue, Diseases of the—H. C. Lindsay (Or.), 729.
- Toxic Reactions Produced by the Application of Trinitrophenol (Picric Acid)—M. Scholtz (M. T.), 688.
- Traumatic Rupture of the Kidney—Edward W. Beach (Or.), 494.
- Traumatic Shock—Its Newer Aspects and Treatment—George K. Rhodes and Carol McKenney (Or.), 665.
- Treatment of Barbitol Poisoning With Glucose—George H. Sanderson (C. R.), 887.
- Treatment of Bone Tumors—Edwin I. Bartlett (Or.), 877.
- Treatment of Laryngeal Tuberculosis—Charles Rubinstein (M. T.), 825.
- Treatment of Poliomyelitis—E. B. Shaw and H. E. Thelander (M. T.), 754.
- Tribromethanol as a Preoperative Narcotic—Dorothy A. Wood (Or.), 719.
- Trichomonas Vaginalis Vaginitis—T. Floyd Bell (M. T.), 901.
- Tuberculosis, Advanced—Chas. E. Atkinson (Or.), 580.

U

- Unexplained Eosinophilia—A. B. Stockton (Or.), 781.
- Uroselectan—Reactions Accompanying Its Practical Application—George W. Hartman (Or.), 867.
- Ureteral Pain After Nephrectomy—Treatment by Ureterectomy—Lewis Michelson (Or.), 738.
- Urography—Adolph A. Kutzman (M. T.), 824.

V

- Varicose Vein Injecting Needle—Raymond L. Schulz (C. N.), 746.
- Varicose Veins—Treatment by the Injection of Sclerosing Solutions—T. O. Burger and Hall C. Holder (Or.), 490.

W

- William Bebb Collection of Prints of Paris Hospitals—Eva West (L. M. H.), 809.

Y

- Yaws and Syphilis, Differentiation Between—B. C-N. O'Reilly (Or.), 881.

III

INDEX—EDITORIALS

✓ ✓ ✓

- A California Mental Hygiene Survey, (Ed.), 897.
- Anatomy Acts of California, (Ed.), 753.
- A Proposed Chiropractic Initiative, (Ed.), 612.
- A State Election Year—New Reapportionment in the California Legislature, (Ed.), 684.
- California Legislature and Some Public Health Problems, The, (Ed.), 893.
- Can a Corporation Practice Medicine—Court Rules Not, (Ed.), 820.
- Comment on This and That, (Ed.), 821.
- County Medical Society—A Business Organization, The, (Ed.), 894.
- County Society By-Laws—In Relation to Dues and Membership, (Ed.), 820.
- Federal and State Foods and Drugs Acts—Influence of Advertising Methods Thereon, (Ed.), 895.
- Food Fads and Fallacies—Resolutions Thereon by the Council, (Ed.), 515.
- Letter of October 6 and Its Enclosure, (Ed.), 820.
- Medico-Economic Problems, (Ed.), 611.
- Optometry in a Southern California University, (Ed.), 896.
- Porter Narcotic Bill, H. R. 11143, Now a Federal Law, (Ed.), 515.
- Some C. M. A. Membership Statistics, (Ed.), 750.
- Statistics of State Medical Examining Boards—With Comments on Some of the California Tabulations, (Ed.), 517.
- Summer Days are Here Again—The Value of a Vacation Outing Meeting, (Ed.), 613.
- The First American Doctor in California, John Marsh—An Historical Contribution to the Medical History of California, (Ed.), 751.
- The Advertising Patrons of California and Western Medicine—Why They Deserve Your Support, (Ed.), 614.
- Woman's Auxiliary of the California Medical Association, (Ed.), 686.

IV

INDEX—BEDSIDE MEDICINE ARTICLES

✓ ✓ ✓

- Acute Poliomyelitis, 682.
- Anemia, 890.
- Hyperthyroidism, 818.
- Senile Keratoses, 513.
- Strabismus—When to Operate, 747.
- X-Ray Burns, 609.

V

INDEX—MEDICINE TODAY ARTICLES

✓ ✓ ✓

- Alleged Superiority of Normal Human Serum Over Convalescent Serum in Poliomyelitis, 898.
- Artificial Diphtheria Antitoxins, 756.
- Cardiac Diagnosis, 900.
- Diagnosis of Allergic Rhinitis, 756.
- Excretion of Analgesics and Hypnotics, 898.
- Foreign Bodies in the Cornea, 615.
- Importance of Mental Facts in Medicine, 689.
- Innervation of the Kidney, 617.
- Isometric Contraction of Skeletal Muscle, 899.
- Method of Obtaining Blood of Small Infants for Examination, 521.
- Non-Specific Urethritis in the Female, 825.
- Pellagra, 615.
- Prevention of Contractures in Poliomyelitis, 688.
- Psittacosis, 525.
- Pyelitis—A Consideration of Certain Phases of, 521.
- Radium in Hemorrhagic Conditions, 755.
- Reduction of Fractures and Dislocations Under Local Anesthesia, 825.
- Seasonal Hay Fever—Some Problems in Treatment, 520.
- Thallium Acetate, 616.
- Toxic Reactions Produced by the Application of Trinitrophenol (Picric Acid), 688.
- Treatment of Poliomyelitis, 754.
- Treatment of Laryngeal Tuberculosis, 825.
- Trichomonas Vaginalis Vaginitis, 901.
- Urography, 824.

VI

INDEX—MEDICAL HISTORY ARTICLES

✓ ✓ ✓

- Extra Academic Origin of Medical Specialties, The—LeRoy Crummer, Part I, 884.
- Girolamo Fracastoro (1478-1553)—and Syphilis—W. K. Stratmann-Thomas, 739.
- Sixteenth Century German Medicine—S. L. Millard Rosenberg, Part I, 508; Part II, 602; Part III, 673.
- William Bebb Collection of Prints of Paris Hospitals—Eva West, 809.

VII

INDEX—MISCELLANY COLUMNS

• • •

California Board of Medical Examiners, 542, 696, 765, 848, 920.
Correspondence, 541, 622, 693, 845.
Department of Public Health, 541, 623, 763, 845, 919.
In Lighter Vein, 913.
Medical School Legislation, 768.
Membership and Organization, 766.
Much in Little, 694, 763, 844, 913.
News, 540, 622, 692, 763, 844, 912.
Public Policy and Legislation, 694, 846.
Twenty-five Years Ago, 541, 623, 695, 764, 847, 917.

VIII

INDEX—CALIFORNIA MEDICAL ASSOCIATION PROCEEDINGS

• • •

(a) General

By-Laws of the Trustees of Membership of the California Medical Association, 833.
California Medical Association, 534, 618, 690, 902.
Council Minutes, 193rd meeting, 827; 194th meeting, 831; 195th meeting, 836. Excerpted minutes from 197th meeting, 838.
Certificate of Membership in Trustees of the California Medical Association, 822.
Extension Lecture Program, 759.
Reports of Standing Committees, 524, 914.

(b) Component County Societies

Alameda County, 534, 618, 902.
Contra Costa County, 757, 902.
Fresno County, 534, 575, 902.
Napa County, 618, 903.
Orange County, 534, 757, 904.
Placer County, 904.
Sacramento County, 534, 904.
San Bernardino County, 905.
San Diego County, 535.
San Joaquin County, 535, 757, 905.
San Mateo County, 535.
Santa Barbara County, 618, 691, 758, 906.
Santa Clara County, 618.
Ventura County, 535, 906.
Yolo-Colusa County, 534.
Yuba-Sutter County, 535.

(c) Woman's Auxiliary

Letter from the President, 839.
Report of Annual Meeting at Del Monte, 619.
Report of Secretary-Treasurer, 619.
Los Angeles County, 909.
Orange County, 759, 910.
San Bernardino County, 910.

IX

INDEX—DECEASED MEMBERS

• • •

Blanchard, George Lake, 908.
Blake, William Ford, 759.
Croat, Edward A., 908.
Dunham, Ora Baxter, 538.
Finney, Clara Eugenia, 691.
Gardner, Samuel J., 538.
Gwaltney, John Sanford, 618.
Herbert, Gavin Shearer, 691.

Hickox, Arthur Swain, 538.
Hunkin, Samuel J., 908.
Jackson, John Alfred, 908.
Jump, Robert L., 691.
Kearney, Percy Francis, 691.
Kneeder, William L., 908.
Lowell, Charles Herbert, 691.
MacLeish, Archibald Lyle, 538.
Maupin, James Lawrence, 908.
Montgomery, John Andrew, 908.
Nahl, Constante Alexander, 538.
Ogden, George Weston, 759.
Pickett, Jesse Cameron, 908.
Pollock, Robert, 537.
Ring, Hogan, J., 538.
Ruble, George Clyde, 538.
Ryan, Louis X., 538.
Schooling, H. Guy, 538.
Schmitz, John, 618.
Selling, Nathalie A., 908.
Shank, George Austin, 538.
Shields, Nicholas J., 908.
Short, Charles Augustus, 908.
Thompson, Charles Elliott, 691.
Threadgill, Jesse Mercer, 538.
Wanzer, Lucy Maria Field, 908.
Watters, Peter Kemp, 619.
Weber, Philip Henry, 619.
Whittington, William L., 759.
Zerfing, Charles, 908.

X

INDEX—NEVADA STATE MEDICAL ASSOCIATION

• • •

Nevada State Medical Association, 538.
Washoe, 538, 762, 840, 910.

XI

INDEX—UTAH STATE MEDICAL ASSOCIATION

• • •

Utah State Medical Association, 539, 620, 691.
House of Delegates Minutes, 841.
Salt Lake, 539, 620, 840, 911.
Utah, 539.
Weber, 539, 621.

XII

INDEX—BOOK REVIEWS

• • •

A History of the California Academy of Medicine, 1870-1930, J. Marion Read. Adv. p. 15, September.
American Pocket Medical Dictionary, W. A. Newman Dorland. Adv. p. 14, October.
Annual Reprint of the Reports of the Council on Pharmacy and Chemistry of the American Medical Association. Adv. p. 15, August.
Applied Bacteriology for Nurses, Charles Frederick Bolduan. Adv. p. 20, December.
A Textbook of Massage for Nurses and Beginners, Maude Rawlins. Adv. p. 17, November.
A Textbook on Orthopedic Surgery, Willis C. Campbell. Adv. p. 14, July.
Cancer of the Breast, William Crawford White. Adv. p. 11, August.

Clinical Nutrition and Feeding in Infancy and Childhood, I. Newton Kugelmass. Adv. p. 22, December.
Collected Papers of the Mayo Clinic and Mayo Foundation. Adv. p. 14, December.
Diseases of the Blood, Paul W. Clough. Adv. p. 14, July.
Diseases of the Nose, Throat and Ear—Medical and Surgical, William Lincoln Ballenger. Adv. p. 11, October.
Doctor and Patient—Paper on the Relationship of the Physician to Men and Institutions, Francis Weld Peabody. Adv. p. 12, October.
Doctors and Specialists—A Medical Revue with a Prologue and a Good Many Scenes, Morris Fishbein. Adv. p. 14, November.
Gynecology for Nurses, George Gillhorn. Adv. p. 12, September.
Handbook of Pediatric Procedures, Francis Scott Smyth and Edith I. M. Irvine-Jones. Adv. p. 22, December.
Infant Nutrition—A Textbook on Infant Feeding for Students and Practitioners of Medicine, William McKim Marriott. Adv. p. 12, October.
Insomnia—How to Combat It, Joseph Collins. Adv. p. 15, September.
Manual of Physical and Clinical Diagnosis, Otto Seifert and Friedrich Muller. Adv. p. 20, December.
Medical and Surgical Year Book Physicians' Hospital of Plattsburgh. Adv. p. 17, December.
Medical Information on Sickness and Health, Philip Skrainka. Adv. p. 15, July.
Minor Surgery, Arthur E. Hertzler and Victor E. Chesky. Adv. p. 19, December.
New and Nonofficial Remedies, American Medical Association, 1930. Adv. p. 12, August.
Obstetrics for Nurses, Joseph B. De Lee. Adv. p. 17, September.
Otosclerosis, Résumé of Literature to July '28. Adv. p. 12, August.
Personal and Community Health, Clair Elsmere Turner. Adv. p. 20, December.
Physical Diagnosis, Richard Cabot. Adv. p. 14, November.
Recent Advances in Medicine—Clinical, Laboratory, Therapeutic, G. E. Beaumont and E. C. Dodds. Adv. p. 11, August.
Recent Advances in Neurology, W. Russell Brain and E. B. Strauss. Adv. p. 12, July.
Recent Advances in Preventive Medicine, J. P. C. Haslam. Adv. p. 15, September.
Research and Medical Progress and Other Addresses, J. Shelton Horsley. Adv. p. 14, August.
Surgical Diagnosis, American Authors. Adv. p. 19, December.
Symptoms of Visceral Disease: A Study of the Vegetative Nervous System in Its Relationship to Clinical Medicine, Francis Marion Pottinger. Adv. p. 17, December.
The Baby's First Two Years, Richard M. Smith. Adv. p. 14, September.
The Bacteriophage and Its Clinical Application, F. D. Herelle, translated by George H. Smith. Adv. p. 14, August.
The Basis of Epilepsy, Edward A. Tracy. Adv. p. 15, December.
The Doctor Discusses Your Questions, Mark Gerstle. Adv. p. 11, August.
The Essentials of Histology, Descriptive and Practical for the Use of Students, Edward Sharpey Schafer. Adv. p. 15, September.
The Newer Knowledge of Nutrition, E. V. McCollum and Nina Simmonds. Adv. p. 14, September.
The Treatment of Fractures, Lorenz Bohler, translated by M. E. Steinberg. Adv. p. 12, September.

The Treatment of Skin Diseases in Detail. Noxon Toomey. Adv. p. 12, September.
 Uterine Tumors. Charles C. Norris. Adv. p. 17, November.
 Venereal Diseases, Hugh Wansey Bagley. Adv. p. 11, August.

XIII

INDEX—REPORT OF BOARD OF MEDICAL EXAMINERS

Index to News Items, Vol 33, July to December, 1930

Abbott, Clark L., M. D., reappointment, p. 920.

Abortions:

Boido, Rose, M. D.
 Bold, Francis J., M. D.
 Darrow, George E., M. D.
 de Vaughn, Oscar W., M. D.
 Eda, Mrs. S. (midwife).
 Edwards, Clarence E., M. D.
 Fiske, William C., M. D.
 Jones, Eben, D. C.
 Rinetti, Elena (midwife).
 Tapley, Fred B.

Albrextondare, R. H., p. 542.

Allen, Clayton C., p. 542.

Allen, William D. (United States narcotic agent), p. 766.

Anderson, Pearl, p. 696.

Ankenbrand, Roy, D. C., p. 542.

Appeals pending:

Anderson vs. Board, pp. 696, 920.
 Bold vs. Board, p. 920.
 de Vaughn vs. Board, p. 920.
 Landerman vs. Board, p. 920.
 Moran vs. Board, pp. 696, 920.
 Randall vs. Board, p. 920.
 Rinaldo vs. Board, pp. 696, 920.
 Tapley vs. Board, p. 920.
 Traxler vs. Board, p. 920.

Atkinson, Archibald A., M. D., p. 920.

Bach, Alfred (see Gersback), pp. 543, 696.

Balfour, Donald C., p. 542.

Bernard, Bernard, p. 542.

Berryessa, M. C., p. 543.

Bland, George H., p. 920.

Board hearings, p. 920. See probation; certificates revoked; certificates suspended.

Boido, Rose, M. D., p. 696.

Bold, Francis J., M. D., pp. 543, 696, 920.

Brinkley, John R., pp. 542, 543, and 766.

Brooks, J. J., p. 766.

Brown, James T., M. D., p. 920.

Bussell, D. J., p. 696.

California Chiropractic Association, p. 543.

Certificates restored:

Greig, Thomas O., M. D., p. 920.

Certificates revoked:

Atkinson, Archibald, M. D.
 Boido, Rose, M. D.
 Bold, Francis J., M. D.
 Brown, James Terrell, M. D.
 Cotterell, Samuel, M. D.
 de Vaughn, Oscar, M. D.
 Edwards, Clarence E., M. D.
 Hoyt, Walter C., M. D.
 Rinetti, Elena (midwife).
 Scosseria, Ernest, M. D.
 Siler, Newton, M. D.
 Whitmore, William V., M. D.

Certificates suspended, p. 920.

Leadsworth, John R., M. D.
 MacLauchlan, Robert H., M. D.
 Van Tassell, Fred H., M. D.

Chang, Ah Mow, p. 766.

Chang Hai Herb Co., p. 766.

Chinese herbalists:

Ah Mow Chang.
 Chang Haie.
 Charles Lew.
 Lau Yit Cho.
 Lou Wing (alias Lou Sun).

Chiropractic Board, p. 543.

Chiropractic Initiative, editorial, p. 612.

Chiropractor violators:

Ankenbrand, Roy, D. C., p. 542.
 Collantz, Wilfred E., D. C., p. 542.
 Jones, Eben, D. C., p. 543.
 Sauls, Willard H., D. C.

Chirothesian. See Poe, Mary, p. 696.

Cho, Lau Yit.

Collantz, Wilfred E., D. C., p. 542.

Cotterell, Samuel D., pp. 766, 920.

Court decisions, p. 696. See Bold, Francis; Herzig, M. L.

Darrow, George E., M. D., p. 696.

de Vaughn, Oscar, M. D., pp. 696, 920.

Eda, Mrs. S. (Japanese midwife), p. 543.

Edwards, Clarence E., M. D., p. 920.

Examination reports, p. 765.

Eyesight racketeers, pp. 543, 696. See Faircloth, Frank; Gebhardt, John F.; Martin, Roy L.; Wilkinson, Elliott.

Faircloth, Frank, p. 696.

Fiske, William C., M. D., p. 848.

Gebhardt, John F., p. 696.

Geistweit, William H., M. D., reappointment, p. 920.

Gersabeck, Alfred. See Bach, Alfred, p. 545.

Glover, Louise, p. 542.

Golden State Hospital Association, p. 696.

Graham, Dr. C. M., p. 543.

Greig, Thomas, M. D., pp. 696, 920.

Habitual intemperance. See Greig, Thomas, M. D.; Hoyt, Walter C., M. D.

Harris, Junius B., M. D., President-Elect California Medical Association, p. 542.

Herzig, Maximilian Leopold, p. 766.

Hoffman, Ernest R., M. D., p. 696.

Hopson, Walter Winston, M. D., p. 543.

Hospital associations. See court decisions.

Hotten, Lewis T. A., M. D., p. 696.

Hoyt, Walter C., M. D., pp. 766, 920.

Hungary excludes American physicians, p. 848.

Hunhas, A. See Albrextondare.

Indian doctor. See Conway.

Industrial Accident Commission, p. 696.

Intemperance. See habitual intemperance.

Johnson, Dwight D., M. D., p. 920.

Jones, Eben, D. C., p. 543.

Kerr, Franklin, p. 696.

Kinne, Elmer F., M. D., p. 696.

Lantermann, Roy S., M. D., p. 920.

Lau Yit Cho, p. 848.

Legal—See:

Court decisions.

Writs.

Department reports.

Hearings.

Suspended sentence requirements.

Leadsworth, John R., M. D., p. 920.

Lew, Charles (Chinese herbalist), p. 696.

MacLauchlan, Robert H., M. D., p. 920.

Maher, Galen F., D. C., p. 848.

Mandate, Writs of (Herzig), p. 766.

Martin, Roy L., p. 696.

McNaul, William, M. D., p. 696.

Medical Board appointments, p. 920.

Miller, Orlando E., p. 543.

Moran, Frank, M. D., pp. 696, 920.

Morris, E. R., p. 543.

Murray, James J., M. D., p. 920.

Narcotic agents:

Allen, William D., p. 766.
 Williamson, Harry V., p. 766.

Narcotic violators:

Atkinson, Archibald A., M. D.
 Allen, Clayton C. (not licensed).
 Bland, George H., M. D.
 Brown, James T., M. D.
 Cotterell, Samuel D., M. D.
 Drader, Cecil R., M. D.
 Graham, C. M., M. D.
 Hopson, Walter Winston, M. D.
 Johnson, Dwight D., M. D.
 Kinne, Elmer F., M. D.
 McNaul, William, M. D.
 Murray, James J., M. D.
 Scosseria, Ernest, M. D.
 Siler, Newton B., M. D.
 Van Tassell, Fred H., M. D.
 Weaver, Darrington, M. D.
 Whitmore, William V., M. D.

National Medical University. See Herzig.

Poe, Mary (Chirothesian), p. 696.

Probation:

Bland, George H., M. D.
 Johnson, Dwight D., M. D.
 Kinne, Elmer, M. D.
 McNaul, William, M. D.
 Murray, James J., M. D.

Probation officer, p. 542.

Randall, Thomas J., M. D., p. 920.

Revoked (see certificates revoked).

Rinaldo, Eugene, M. D., pp. 696, 920.

Rinetti, Elena (midwife), p. 696.

Robertson, H. Miller, M. D., appointed on Board, p. 920.

Royal University of Naples. See Herzig.

Schoff, Charles E., M. D., reappointment, p. 920.

Scosseria, Ernest, M. D., p. 920.

Shepherd, John P., p. 848.

Siler, Newton B., M. D., p. 920.

Staley, H. Lynn, p. 766.

St. Louis College of Physicians and Surgeons. See Herzig, M. L.

Sun, Lou, p. 848.

Suspended sentences, p. 542.

Traxler, Paul, M. D., p. 920.

United States National Medical University. See Herzig.

University of Lausanne. See Herzig, M. L.

Van Tassell, Fred H., M. D., p. 920.

Violators—Medical Act:

Ah Mow Chang
 Bach, Alfred
 Balfour, Donald C.
 Berryessa, M. C.
 Brooks, J. J.
 Bussell, D. J.
 Chang Hai Herb Co.
 Charles Lew
 Conway, W. J.
 Faircloth, Frank
 Gebhardt, John F.
 Gersabeck, Alfred
 Martin, Roy L.
 Moore, James E., D. D. S.
 Morris, E. R.
 Ocampo, Augustin
 Poe, Mary
 Sauls, Willard, D. C.
 Staley, H. Lynne
 Wilkinson, Elliott

Whitmore, William V., M. D., p. 920.

Wilkinson, Elliott, p. 696.

Williamson, Harry V., p. 766.

Wing, Lou, p. 848.

Writs. See Mandate.

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CONTENTS AND SUBJECT INDEX

SPECIAL ARTICLES:

The Deep Mycoses in Their Surgical Aspects—The Rôle of Laboratory Diagnosis. By Fred D. Weidman, Philadelphia, Pennsylvania.....465

Pulmonary Hemorrhage. By Emil Bogen, Los Angeles.....473

Safety Measures in the Practice of Urology. By Charles Pierre Mathé, San Francisco 480

Acute Intestinal Obstruction—Its Diagnosis by the Flat X-Ray Film. By Marcus H. Rabwin and Ray A. Carter, Los Angeles.....483
 Discussion by Kenneth S. Davis, Los Angeles; Robert S. Stone, San Francisco.

Lymphoblastoma Involving the Stomach—Roentgenologically Considered. By Howard E. Ruggles and Robert S. Stone, San Francisco.....486
 Discussion by Addison E. Elliott, San Diego; Henry Snure, Los Angeles.

Varicose Veins—Treatment by the Injection of Sclerosing Solutions. By Thomas O. Burger and Hall G. Holder, San Diego.....490
 Discussion by Emile Holman, San Francisco; John Homer Woolsey, San Francisco; Norman J. Kilbourne, Los Angeles.

Traumatic Rupture of the Kidney. By Edward W. Beach, Sacramento.....494
 Discussion by Miley B. Wesson, San Francisco; Louis Clive Jacobs, San Francisco.

Pyocyanic Angina—With Agranulocytosis. By Madison J. Keeney, Los Angeles 502
 Discussion by Fred Linthicum, Los Angeles; John V. Barrow, Los Angeles; Ernest H. Falconer, San Francisco.

The Business of Medicine. By Rexwald Brown, Santa Barbara.....505

Sixteenth Century German Medicine—The Lure of Medical History. (Part I.) By S. L. Millard Rosenberg, Ph. D., Los Angeles 508

CLINICAL NOTES AND CASE REPORTS:

Spontaneous Rupture of Spleen—Following Malaria Therapy for General Paresis. By Edward W. Twitchell, San Francisco.....512

BEDSIDE MEDICINE:

Senile Keratoses 513
 Discussion by H. J. Templeton, Oakland; Merlin T. R. Maynard, San Jose; Moses Scholtz, Los Angeles.

EDITORIALS:

Porter Narcotic Bill, H. R. 11143, Now a Federal Law.....515
 Food Fads and Fallacies—Resolutions Thereon by the Council.....515
 Statistics of State Medical Examining Boards—With Comments on Some of the California Tabulations.....517

MEDICINE TODAY:

Seasonal Hay Fever—Some Problems in Treatment. By Samuel H. Hurwitz, San Francisco 520
 A Method of Obtaining Blood of Small Infants for Examination. By Chris R. Halloran, Los Angeles 521
 A Consideration of Certain Phases of Pyelitis. By E. J. Eytinge, Redlands.....521
 Psittacosis. By Mary L. Neff, Los Angeles.....523

TRANSACTIONS OF ANNUAL SESSION:

Health Insurance—A Preliminary Survey. By John H. Graves, San Francisco 524
 The California "Clinic" Problem. By John C. Ruddock, Los Angeles.....527

STATE MEDICAL ASSOCIATIONS:

California Medical Association.....534
 Nevada State Medical Association 538
 Utah State Medical Association.....539

MISCELLANY:

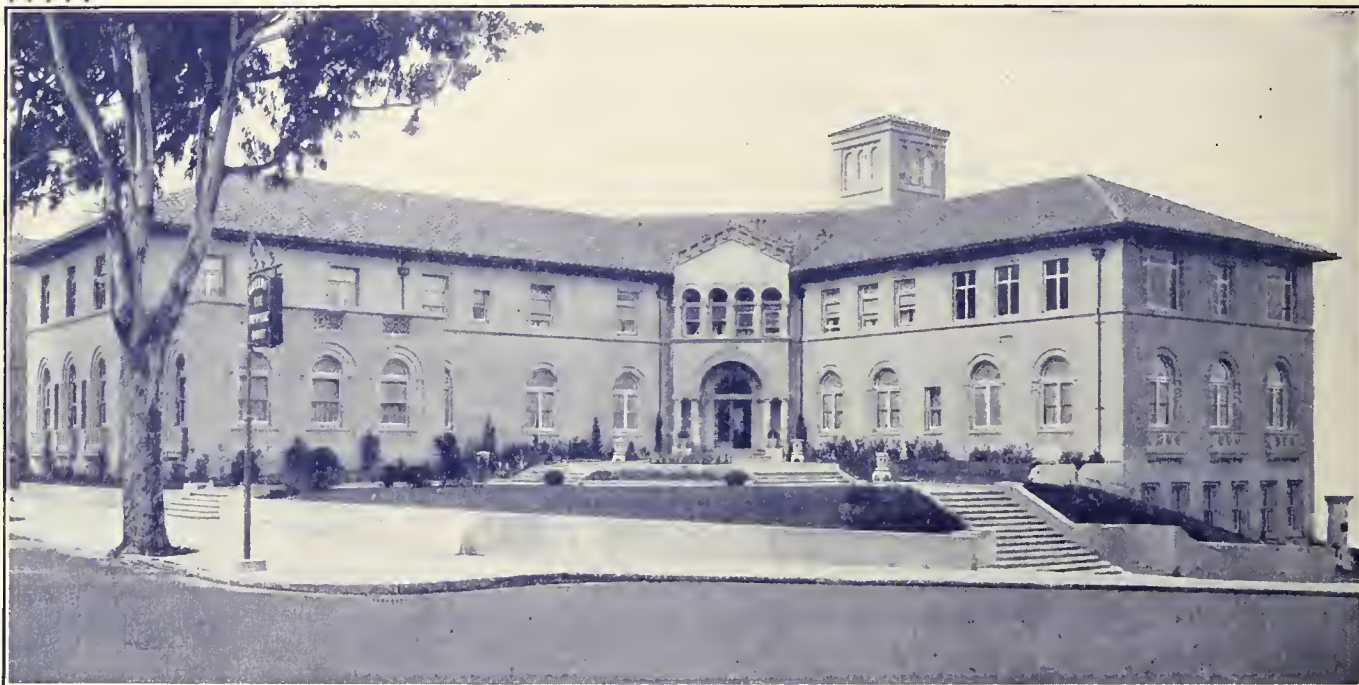
News 540
 Correspondence 540
 Twenty-Five Years Ago.....541
 Department of Public Health.....541
 California Board of Medical Examiners.....542
 Index to Report of Board of Medical Examiners 544
 Directory of Officers, Sections, County Units, and Woman's Auxiliary of the California Medical Association.....
Adv. page 2
 Book Reviews.....Adv. page 11
 Truth About Medicines.....Adv. page 19

ADVERTISEMENTS—INDEX:

.....Adv. page 8

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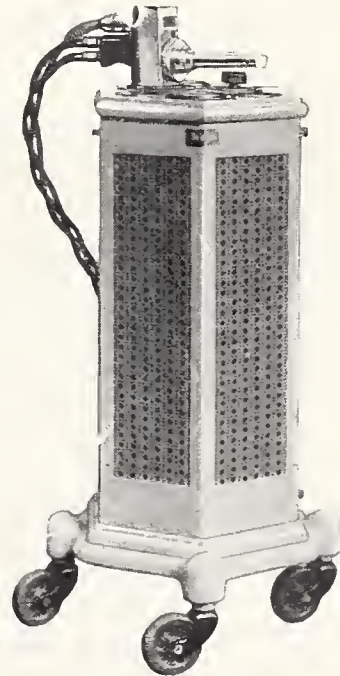
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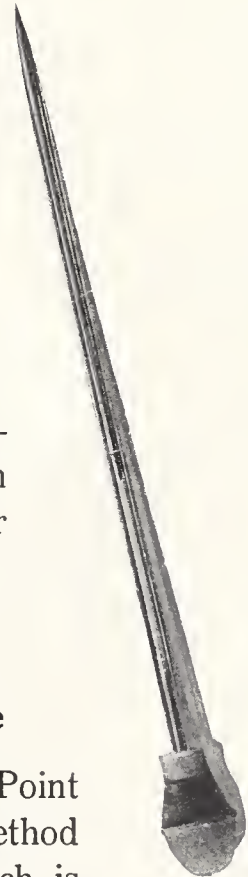
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Place of next meeting.....Salt Lake City, September 9-11, 1930

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The institutions here listed have announcements in this issue of CALIFORNIA AND WESTERN MEDICINE

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CHILDREN'S HOSPITAL General Hospital for Women and Children 3700 California Street, San Francisco, Calif.	LIVERMORE SANITARIUM Nervous and General Diseases Livermore, Calif.	ST. LUKE'S HOSPITAL Limited General Hospital 27th and Valencia Streets, San Francisco
COLFAX SCHOOL FOR THE TUBERCULOUS For the Treatment of Tuberculosis Colfax, Calif.	MONROVIA CLINIC Diagnosis and Treatment of Tuberculosis 137 N. Myrtle Street, Monrovia, Calif.	ST. MARY'S HOSPITAL General Hospital 2200 Hayes Street, San Francisco, Calif.
COMPTON SANITARIUM AND LAS CAMPANAS HOSPITAL, COMPTON Neuropsychiatric and General	OAKS SANITARIUM For the Treatment of Tuberculosis Los Gatos, Calif.	SUTTER HOSPITAL General Hospital 28th and L Streets, Sacramento, Calif.
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	Page		Page		Page
Alexander Sanitarium	56	Golden State Milk Products Co. 30		Officers of Miscellaneous Medical Associations	6
Aloe Co., A. S.	41	Greens' Eye Hospital.....	2 Cover	Park Sanitarium	24
Alum Rock Sanatorium.....	19	Gunn, Herbert, Stool Examination Laboratory	24	Parke, Davis & Co.....	7
American Surgical Sales Co., Ltd., The	33	Guth, C. Rodolph, Clinical Laboratory	10	Petrolagar Laboratories	20
Approved Clinical Laboratories.....	48	Hill-Young School of Corrective Speech	24	Physiotherapy & X-Ray Courses Children's Hospital.....	34
Arlington Chemical Co., The.....	16	Hittenberger Co., C. H.....	10	Podesta and Baldocchi.....	43
Banning Sanatorium	44	Hoffmann-La Roche, Inc.....	13	Post Graduate School of Surgical Technique, Inc.	40
Bard-Parker, Inc.....	45	Holland-Rantos Co., Inc.....	24	Pottenger Sanatorium	53
Barry Co., James H.....	50	Hospitals and Sanatoriums.....	6	Purity Spring Water Co.	15
Bausch & Lomb Optical Co.....	38	Hynson, Westcott & Dunning, Inc.	36	Rainier Brewing Co.....	36
Benjamin & Rackerby.....	33	Jacobs, Louis Clive	28	Richter & Druhe	54
Benjamin, M. J.....	46	Johnston-Wickett Clinic	49	Riggs Optical Company.....	31
Bittleston Collection Agency, Inc.	52	Joslin's Sanatorium	31	Saint Francis Hospital.....	14
Broemmel's Prescription Pharmacies	3	Kelley-Koett Mfg. Co., Inc., The..	15	Santa Barbara Clinic, The.....	52
Brown Press	39	Keniston-Root Corporation	41	Scherer Co., R. L.	27
Bush Electric Corporation.....	1	Knox Gelatine Laboratories.....	25	Scripps Metabolic Clinic and Memorial Hospital	18
Butler Building	18	Laboratory Products Co.....	3 Cover	Sharp & Smith.....	34
California Lima Bean Growers' Ass'n	37	Las Encinas Sanitarium.....	12	Shasta Water Co., The.....	22
California Optical Co.....	49	Lederle Laboratories, Inc.....	23	Shumate's Prescription Pharmacies	24
California Sanatorium	44	Lengfeld's Pharmacy	24	Soiland, Albert (Radiological Clinic)	30
Calso Water Co.....	41	Lilly & Company, Eli.....	32	Southern Sierras Sanatorium.....	22
Camp & Co., S. H.....	30	Lister Bros., Inc.....	11	Squibb & Sons, E. R.	26
Canyon Sanatorium	18	Livermore Sanitarium	29	Stacey, J. W., Medical Books.....	11
Certified Laboratory Products.....	38	Maltbie Chemical Co., The.....	28	St. Joseph's Hospital.....	52
Charles B. Towns Hospital.....	39	Mead Johnson & Co.....	21	St. Luke's Hospital.....	23
Children's Hospital	51	Medico-Dental Finance Corp.....	40	St. Mary's Hospital.....	54
Clark-Gandion Co., Inc.....	14	Mellin's Food Co.	37	Storm Binder and Abdominal Supporter	53
Classified Advertisements	10	Merck & Co., Inc.	56	Sugar Institute	17
Colfax School for the Tuberculous	55	Merrell-Soule Co., Inc.....	42	Sugarman Clinical Laboratory.....	28
Compton Sanitarium and Las Campanas Hospital	9	Monrovia Clinic	43	Sutter Hospital, Sacramento.....	14
Cutter Laboratory	4 Cover	Mulford Company, H. K.	5	Towns Hospital, Charles B.....	39
Dairy Delivery Co.....	35	National Ice and Cold Storage Co.	29	Trainer-Parsons Optical Co.....	27
Dante Sanatorium	4 Cover	New York Polyclinic Medical School and Hospital.....	9	Twin Pines	38
Dewar & Hare Electric Co.....	46	New York Post Graduate Medical School and Hospital.....	39	Union Square Building.....	11
Doctors' Business Bureau.....	19	Nichols Nasal Syphon	43	United States Fidelity & Guaranty Co.	49
Dry Milk Co., The.....	47	Nonspi Company	29	Vita-Fruit Products, Inc.....	35
Four Fifty Sutter	35	Oaks Sanitarium	9	Vitalait Laboratory	12
Franklin Hospital	43	Officers of the California Medical Association	2-4	Wallace, Sidney J.....	53
Frazier, Delmar J.....	12			Walters Surgical Company	51
Furscott, Hazel E.....	24			Wedekind Co., Frank F.....	39

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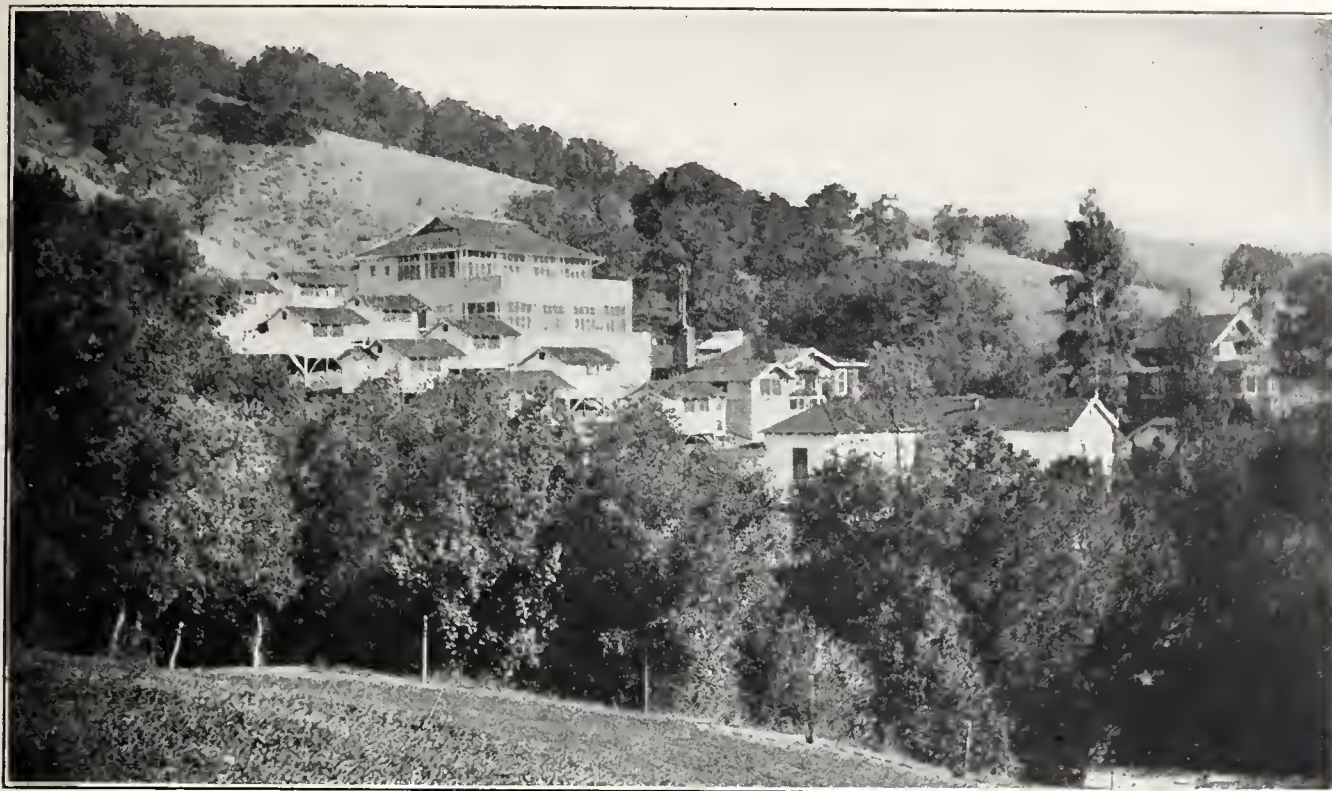
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BOOK REVIEWS

List of Books Received

BOOKS RECEIVED

Ultra-Violet Rays in the Treatment and Cure of Disease. By Percy Hall, M. R. C. S. (Eng.), L. R. C. P. (Lond.), Hon. Acting Therapist, the Mount Vernon Hospital, London, with introductions by Sir Henry Gauvain, M. A., M. D., Medical Superintendent, Lord Mayor Treloar Cripples' Hospitals and Leonard E. Hill, M. B. (Lond.), F. R. C. S., Director, Department of Applied Physiology and Hygiene National Institute of Medical Research, London. Fourth Edition. Cloth. Pp. 248, illustrated. Price, \$4.50. St. Louis: The C. V. Mosby Company, 1930.

A Manual of Diseases of the Nose and Throat. By Cornelius G. Coakley, A. M., M. D., Professor of Laryngology and Otolaryngology in the College of Physicians and Surgeons, Columbia University. Seventh Edition. Revised and Enlarged. Cloth. Pp. 672, illustrated with 153 engravings and seven colored plates. Price, \$4.50 net. Philadelphia: Lea & Febiger, 1930.

Obstetrics for Nurses. By Charles B. Reed, M. D., F. A. C. S., Professor of Obstetrics, Northwestern University Medical School, Chicago, and Charlotte L. Gregory, R. N., B. S., M. D., Adjunct in Obstetrics at Wesley Memorial Hospital; Clinical Assistant in Obstetrics at Northwestern University Medical School, Chicago. Third Edition. Cloth. Pp. 399. One hundred forty-four illustrations including two color plates. Price, \$3.00. St. Louis: The C. V. Mosby Company, 1930.

Infant Nutrition. A Testbook of Infant Feeding for Students and Practitioners of Medicine. By Williams McKim Marriott, B. S., M. D., Professor of Pediatrics, Washington University School of Medicine, St. Louis. Cloth. Pp. 375, illustrated. Price, \$5.50. St. Louis: The C. V. Mosby Company, 1930.

Diseases of the Nose, Throat and Ear. Medical and Surgical. By William Lincoln Ballenger, M. D., F. A. C. S., Late Professor of Otolaryngology and Laryngology, College of Medicine, University of Illinois, Chicago. Revised by Howard Charles Ballenger, M. D., F. A. C. S., Associate of the Otho S. A. Sprague Memorial Institute Laboratory of the Children's Memorial Hospital, Chicago. Sixth Edition. Thoroughly revised. Cloth. Pp. 1138, illustrated with 583 engravings and twenty-nine plates. Price, \$11.00 net. Philadelphia: Lea & Febiger, 1930.

Minor Surgery. By Arthur E. Hertzler, M. D., Chief Surgeon, Halstead Hospital, and Victor E. Chesky, M. D., Chief Resident Surgeon, Halstead Hospital. Second Edition. Cloth. Pp. 602, with 475 illustrations. Price, \$10.00. St. Louis: The C. V. Mosby Company, 1930.

Physiology and Biochemistry in Modern Medicine. By J. J. R. MacLeod, M. B., LL. D., D. Sc., F. R. S., Regius Professor of Physiology in the University of Aberdeen, Scotland. Assisted by Roy G. Pearce, A. C. Redfield, N. B. Taylor and J. M. D. Olmsted and by others. Sixth Edition. Cloth. Pp. 1074, with 295 illustrations, including 9 plates in colors. Price, \$11.00. St. Louis: The C. V. Mosby Company, 1930.

Collected Reprints from the George Williams Hooper Foundation for Medical Research. University of California, Second and Parnassus Avenues, San Francisco. Volume XII. 1928-1929. Issued Spring 1930.

Alimentary Anaphylaxis. By Guy Laroche, Charles Richet Fils and Francois Saint-Girons, Paris, France. Foreword by Professor Charles Richet of the Faculty of Medicine of Paris, Member of the Institute and of the Academy of Medicine. Translated by Mildred P. Rowe and Albert H. Rowe. Preface by Albert H. Rowe. Cloth. Pp. 139. Price, \$2.00 postpaid. Berkeley: University of California Press, 1930.

Medical Information in Sickness and Health. By Philip Skrainka, M. D., Formerly Editor of "Medicine and Surgery," etc., with a Foreword by W. A. Newman Dorland, A. M., M. D., F. A. C. S., Professor of Gynecology and Obstetrics and head of the Department of Obstetrics in the Post-Graduate Medical School of Chicago. Cloth. Pp. 577. New York: Coward-McCann, Inc., 1929.

Clinical Features of Heart Disease. An interpretation of the Mechanics of Diagnosis for Practitioners. By Leroy Crummer, M. D., Emeritus Professor of Medicine, University of Nebraska. Introduction by Emanuel Libman, M. D., Professor of Clinical Medicine, Columbia University. Second Edition, revised and enlarged. Cloth. Pp. 415. Price, \$4.00. New York: Paul B. Hoeber, Inc., 1930.

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BOOKS RECEIVED

(Continued from Preceding Page)

Manual of Physical and Clinical Diagnosis. By Dr. Otto Seifert, Late Professor of Medicine, Wuerzburg, and Dr. Friedrich Mueller, Professor of Medicine II Med. Clinic, Munich. Authorized translation from the Twenty-fourth German Edition by E. Cowles Andrus, M. D., Associate in Medicine, Johns Hopkins University, Associate Physician, Johns Hopkins Hospital. Cloth. Pp. 543, with 140 illustrations and 3 colored inserts. Price, \$6.00. Philadelphia: J. B. Lippincott Company, 1930.

The Basis of Epilepsy. By Edward A. Tracey, M. D., Director of Epileptic Clinic at Forsyth Dental Infirmary, Boston. Cloth. Pp. 92, illustrated. Price, \$2.50. Boston: Richard G. Badger, The Gorham Press, 1930.

Certified Milk Conferences. Held in 1929. Annual Conference American Association of Medical Milk Commissions, Inc., and Certified Milk Producers' Association of America, Inc., Montreal, Canada, June 24-25, 1929.

The Collected Papers of the Mayo Clinic and the Mayo Foundation for 1929. Volume XXI. Edited by Mrs. M. H. Mellish, Richard M. Hewitt, M. D., and Mildred A. Felker, B. S. Cloth. Pp. 1197 with 279 illustrations. Price, \$13.00 net. Philadelphia: W. B. Saunders Company, 1930.

Surgical Diagnosis. Volume III and Separate Index Volume, completing the new work by forty-two American authors. Edited by Evarts Ambrose Graham, M. D., Professor of Surgery, Washington University Medical School. Three octavo volumes, totaling 2750 pages, containing 1250 illustrations and Separate Index Volume. Cloth. Price, \$35.00 a set. Philadelphia: W. B. Saunders Company, 1930.

Affections of the Eye in General Practice. By R. Lindsay Rea, B. Sc., M. D., Surgeon to Western Ophthalmic Hospital, London. Cloth. Pp. 155, with 7 colored plates and 33 other illustrations. Price, \$3.50 net. Philadelphia: Lea & Febiger, 1930.

Methods and Problems of Medical Education. Seventeenth Series. Paper. Pp. 275. The Rockefeller Foundation, New York, 1930.

BOOK REVIEWS

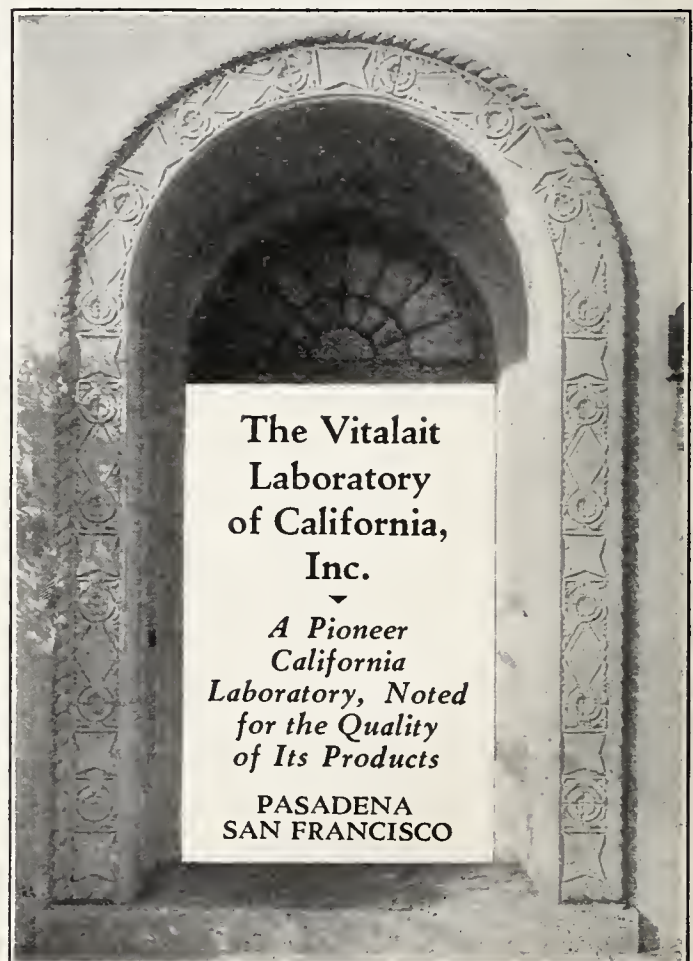
Recent Advances in Neurology. By W. Russell Brain and E. B. Strauss. Second edition. Pp. 429. Illustrated. Philadelphia: P. Blakiston's Son & Company, Inc. 1930. Price, \$3.50.

This small and relatively inexpensive book manages to condense the essentials of the best current ideas in neurology. The authors have contrived to present the problems of this phase of medicine in a style and form which is both lucid and absorbing. The chapters on "Sleep, Normal and Pathological," "Neurotropic Viruses," "The Pituitary and Hypothalamus," "Posture and Tonus," are particularly timely, for these topics are among the most important of those which are today being subjected to continuous investigation.

The volume is admirably illustrated with photographs, drawings and charts. Each chapter is followed by a carefully selected bibliography which should prove most valuable to those desirous of obtaining more detailed information.

An appendix which gives a most useful table picturing the findings in the cerebrospinal fluid in various common neurological conditions precedes the index.

(Continued on Page 14)



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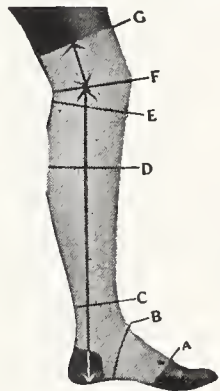
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BOOK REVIEWS

(Continued from Page 12)

This book can be enthusiastically recommended to neurologists who wish to be au courant with the best modern theory and practice of their specialty as well as to all students interested in this rapidly developing and fascinating field of medicine. M. G.

Diseases of the Blood. By Paul W. Clough. Pp. 319. Illustrated. New York and London: Harper & Brothers, 1929.

Dr. Clough's book on diseases of the blood is a small one but it gives all the information necessary to general medical practice in an orderly and compact form. The author is to be commended for leaving out much that is theoretical and for omitting a voluminous bibliography which is unessential in a book of this type. This volume is the best of its kind in English at present, and fills a gap in the list of good, concise treatises on important subjects. It can be recommended to both physicians and medical students and should occupy as select a place in the medical library as Lewis' "Clinical Disorders of the Heart Beat."

The classification of the anemias is commendable for its simplicity. Perhaps too much space is given to chlorosis, as this disorder is mostly of historic interest. The statement that there is no advantage in the hypodermic or intravenous administration of iron over the oral method should be brought to every doctor's attention. The advantages of the histamin test for gastric analysis and of the halometer for measuring the mean diameter of red blood corpuscles are entirely neglected in the chapter on pernicious anemia, which is otherwise excellent. G. H. C.

A Textbook on Orthopedic Surgery. By Willis C. Campbell. Pp. 705. Illustrated. Philadelphia and London: W. B. Saunders Company. 1930. Price, \$8.50.

This book is an excellent review, but lacks discriminating emphasis to be a good textbook for medical students and general practitioners.

The outstanding point about this book is the arrangement. The grouping is excellent, the sequence good.

Better than any book I know of is the chapter on the general orthopedic examination. It is orderly. It gives a good foundation. The chapter on braces, splints, etc., is good as far as such a matter could be treated in a book of this sort.

The text and arrangement on the various acute and chronic joint affections are excellent. This very confus-

ing subject is probably better analyzed than in any other current American textbook.

All fractures are fully described, but it would have been better to have limited the field and emphasized the difficult fractures and illustrated those most commonly mistreated. United fractures are well discussed, especially in regard to surgical management.

Operative treatment takes up a large part of the text, and needless to say, Dr. Campbell has made this phase of the book very comprehensive. There is one exception and that is that there is not sufficient discussion in the treatment of osteomyelitis.

The author says very little in the chapter on the affection of the nervous system and such an important allied subject as endocrine disturbances of bone, is hardly mentioned at all.

Congenital anomalies are well treated. The chapter on congenital dislocation of the hip is not as complete as this subject warrants.

On the whole this is a very excellent textbook, well illustrated, systematic and orderly. The bibliography is excellent.

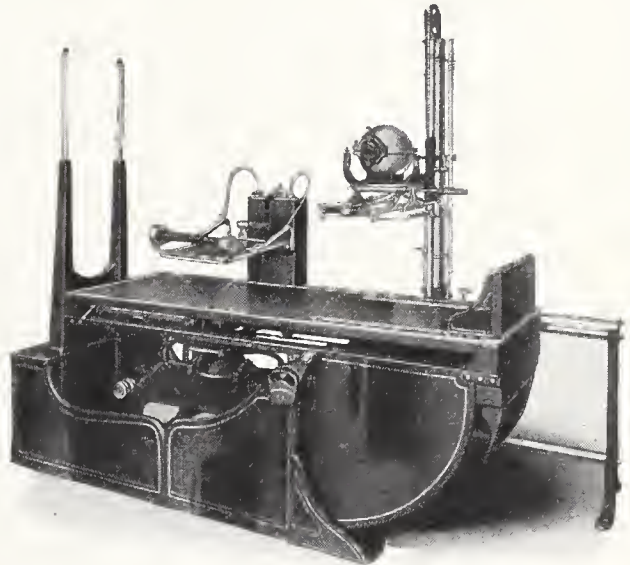
I think that this book is well adapted for the use of practicing surgeons with some knowledge of the subject, but is not detailed and descriptive enough for the average medical student.

R. L. D.

Medical Information in Sickness and Health. By Philip Skrainka, M. D., formerly editor of "Medicine and Surgery," etc. Foreword by W. A. Newman Dorland, A. M., M. D., F. A. C. S., Professor of Gynecology and Obstetrics and Head of the Department of Obstetrics in the Post-Graduate Medical School of Chicago; Author of "The American Illustrated Medical Dictionary," etc. Cloth. Pp. 577. New York: Coward-McCann, Inc., 1929.

The scope of this book is broad, including the important diseases of the various fields of medicine. Innumerable diseases and disorders, including the various systems of the body, have been reduced to such simple description as to be understood by the non-medical mind. Relative values of the symptomatology of even the most intricate and complex diseases are interpreted so that their connection with serious or inconsequential processes is distinguished. Consequently, by this means it serves not only as a guide to the kind of medical service, general or special, which should be sought, but also as a means of alleviating the apprehension so frequently produced by disconcerting yet insignificant symptomatology. On the other hand, the author's broad medical conception has been definitely shown in the opposite direction by the continuous advice to the reader throughout, to apply always to reputable medical service for relief of those complaints indicating the onset of serious disease. As stated by the Journal of the American Medical Association, "this book debunks many of the current health fads." While the work is written primarily for the laity, the information contained therein may be perused advantageously by the entire profession. It cements the relation between the doctor and the public by explaining just when the physician needs to be called, and, in case of emergency, what to do until he gets there. It discourses also on social medicine and the philosophy of health and disease. It is orthodox and authoritative and discloses many of the fallacies of the current health fads. The book in no way attempts to supplant the work of the physician but is the most up-to-date reference to the laity to the worth of the legitimate medical profession. The author has treated this difficult subject in a simple and engaging style. The technical make-up is good, the print is large and clear. The book is attractive and thoroughly instructive to the general practitioner and offers authoritative information for the laymen.

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An Advertising Statement

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New and Nonofficial Remedies

(Abstracts from reports on Council on Pharmacy and Chemistry, American Medical Association.)

In addition to the articles previously enumerated the following have been accepted:

Eli Lilly & Co.—Ampoules Glucose (Dextrose, U. S. P.), Lilly, 50 gm., 100 cc.

Parke, Davis & Co.—Parke, Davis & Company's Cod Liver Oil with Viosterol 5 D.

Sandoz Chemical Works, Inc.—Scillaren, Tablets Scillaren, Solution Scillaren; Scillaren-B, Ampules Scillaren-B.

The following products have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in New and Nonofficial Remedies:

Synephrin. — Hydroxyphenylmethylaminoethanol Hydrochlorid. The hydrochlorid of an alkaloid obtained synthetically. Synephrin is used as a vasoconstrictor. It is less toxic than either epinephrin or ephedrin, and its vasoconstrictor action, while not so pronounced as that of epinephrin, endures for a longer time. In combination with procaine hydrochlorid it is useful for local anesthesia in dental operations and in minor surgery in cases in which a bloodless area is not required. The drug is also supplied in the form of Synephrin Solution "A," Ampoules Synephrin-Procaine, 3 cc. and Hypodermic Tablets Synephrin-Procaine. Frederick Stearns & Co., Detroit.

Mead's Dextri-Maltose with Vitamin B.—A mixture containing approximately: maltose, 52.58 per cent; dextrans, 39.80 per cent; protein, 4.34 per cent; mineral salts, 2.28 per cent; and moisture, 1 per

(Continued on Page 23)



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TRUTH ABOUT MEDICINES

(Continued from Page 13)

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(Continued on Page 26)

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WINTER SALAD (Six Servings)

	Grams	Prot.	Fat	Carb.	Cal.
2 teaspoons Knox Sparkling Gelatine	4.5	4		..4	
1/4 cup cold water.....	....	....	....	....	....
1/2 cup hot water.....	....	....	....	....	....
1/2 teaspoon salt.....	....	....	....	....	....
1/4 cup vinegar.....	....	....	....	....	....
1 1/2 cups grated cheese.....	150	43	54	....	....
1/2 cup chopped stuffed olives.....	70	1	19	8	....
1/2 cup chopped celery.....	60	1	....	2	....
1/4 cup chopped green pepper.....	25	....	....	1	....
1/2 cup cream, whipped.....	75	2	30	2	....
Total	51	103	13	1183	
One serving	8.5	17	2	197	

Soak gelatine in cold water. Bring water and salt to boil and dissolve gelatine in it. Add vinegar and set aside to chill. When nearly set, heat until frothy, fold in cheese, olives, celery, pepper and whipped cream. Turn into molds and chill until firm. Unmold on lettuce leaf and serve.

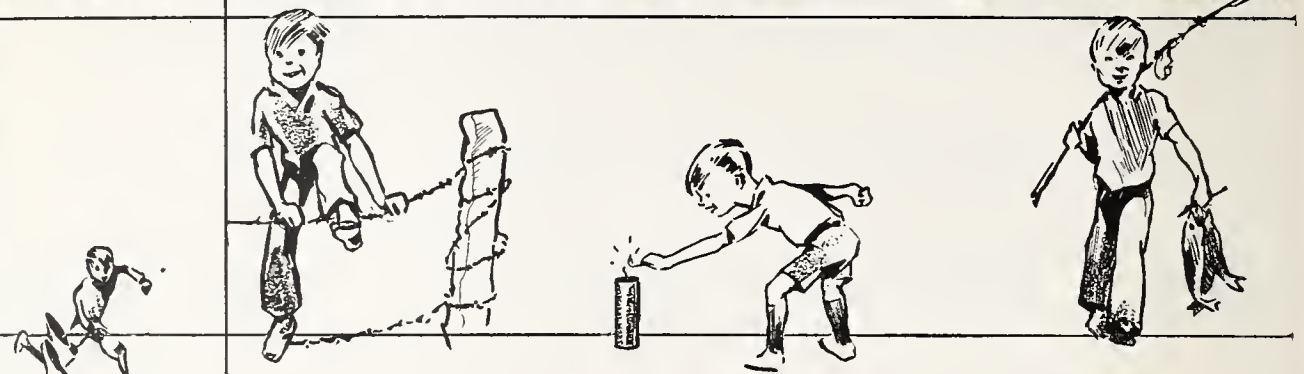
SPINACH SALAD (Six Servings)

	Grams	Prot.	Fat	Carb.	Cal.
1 1/2 tablespoons Knox Sparkling Gelatine.....	10	9	....	..4	....
1/4 cup cold water.....	....	....	....	....	....
1 1/4 cups boiling water.....	....	....	....	....	....
2 tablespoons lemon juice.....	20	....	....	2	....
1/2 teaspoon salt.....	....	....	....	....	....
1 1/2 cups cooked spinach, chopped.....	300	6	....	7	....
2 hard cooked eggs.....	100	13	10.5	....	....
Total	28	10.5	9	242.5	
One serving	5	2	1.5	40	

Soak gelatine in cold water and dissolve in boiling water. Add lemon juice, salt, strain and chill. When nearly set, stir in chopped spinach, mold and chill until firm. Serve on lettuce hearts or tender chicory leaves and garnish with hard cooked egg, cut lengthwise in sixths and sprinkled with paprika. Serve with mayonnaise.

If you agree that recipes like the ones on this page will be helpful in your diabetic practice, write for our complete Diabetic Recipe Book—it contains dozens of valuable recommendations. We shall be glad to mail you as many copies as you desire. Knox Gelatine Laboratories, 417 Knox Ave., Johnstown, N. Y.

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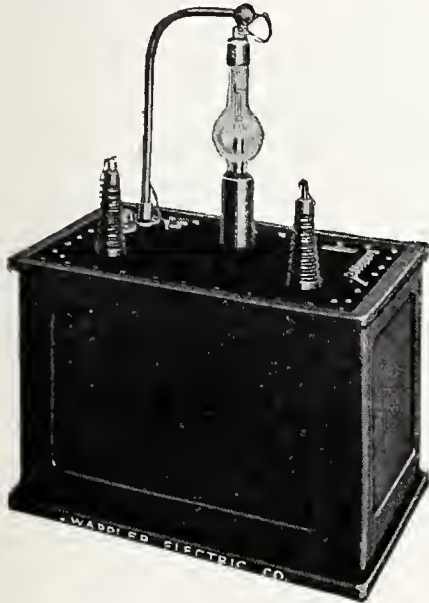


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SAN DIEGO

TRUTH ABOUT MEDICINES

(Continued from Page 23)

Ampoules Glucose (Dextrose, U. S. P.) Lilly, 50 gm., 100 cc.—Each ampoule contains dextrose, U. S. P. (New and Nonofficial Remedies, 1930, p. 245) 50 gm.; distilled water to make 100 cc.; accompanied by an ampoule containing 4 cc. of a buffer solution. Eli Lilly & Co., Indianapolis.

Parke, Davis & Company's Cod Liver Oil with Viosterol 5 D.—A brand of cod liver oil with viosterol 5 D-N. N. R. (New and Nonofficial Remedies, 1930, p. 257). Parke, Davis & Co., Detroit.—*Jour. A. M. A.*, May 31, 1930 p. 1761.

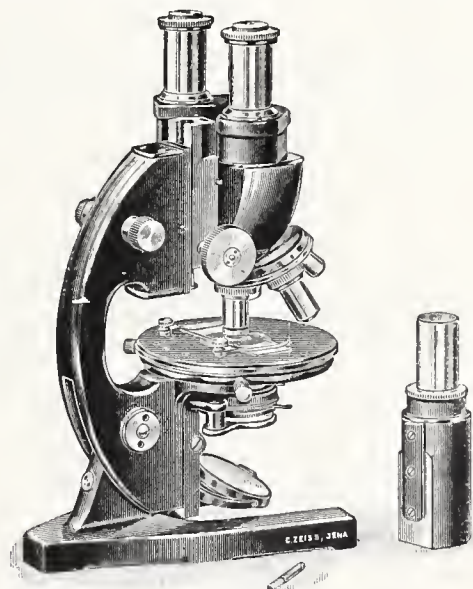
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(Continued on Next Page)



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TRUTH ABOUT MEDICINES

(Continued from Preceding Page)

strated that the Stoppollen air filter was efficient as
a means of keeping a room free from dust and pol-
lens.—*Jour. A. M. A.*, May 31, 1930, p. 1760.

PROPAGANDA FOR REFORM

Metatone Not Acceptable for N. N. R.—Shotgun
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and some received more or less official recognition
by being included in the national Pharmacopeia. In
recent years these tonic mixtures have deservedly
fallen into disuse, although included in the line of
preparations of many manufacturers. Occasionally
an effort is made to revive the use of such tonics
by the addition of an ingredient the use of which has

become a current fad. One of the recent attempts
in this direction is the exploitation by Parke, Davis
& Co. of a typical shotgun tonic mixture, modernized
by the addition of "vitamin B extract." This prepa-
ration, known as Metatone, is stated to have the
following composition: alcohol, 16 per cent; vitamin
B extract per fluid-ounce, 10 grs.; nucleic acid, 2
grs.; calcium glycerophosphate, 4 grs.; potassium
glycerophosphate, 4 grs.; sodium glycerophosphate,
2 grs.; manganese glycerophosphate, ½ gr.; strychnin
glycerophosphate, 8/200 gr. The statement as
to the amount of "vitamin B extract" is meaning-
less and gives no indication as to the actual amount
of vitamin B present, and there appears to be no
good reason for giving it along with the other con-
stituents of Metatone. Most of the other constituents

(Continued on Page 30)

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TRUTH ABOUT MEDICINES

(Continued from Page 28)

of Metatone have long since been discredited as useful therapeutic agents. The Council on Pharmacy and Chemistry declared Metatone unacceptable for New and Nonofficial Remedies because it is an unscientific mixture, marketed under a proprietary name with unwarranted therapeutic claims.—*Jour. A. M. A.*, May 3, 1930, p. 1405.

Collosol Kaolin Not Acceptable for N. N. R.—The Council on Pharmacy and Chemistry reports that Collosol Kaolin is the name given by the Crookes Laboratories, Inc., to a product stated to be "a prepared clay, giving a comminuted chemically inert material of high absorptive capacity." The use of the product is recommended in various conditions, including rheumatism, neuritis and asthma. The Council points out that the Germans, who had employed it against dysentery during the war, abandoned its use and substituted charcoal. The Council declared Collosol Kaolin unacceptable for New and Nonofficial Remedies because of the unwarranted therapeutic claims and because of possible dangers from the therapeutic use of the product.—*Jour. A. M. A.*, May 3, 1930, p. 1406.

Recresal Not Acceptable for N. N. R.—The Council on Pharmacy and Chemistry reports that Recresal is the product of Chemische Werke vorm. H. & E. Albert, Wiesbaden-Beibrich, Germany, and that, according to the information received from this firm, the product is sodium phosphate monobasic and is therefore nothing more than the well known acid sodium phosphate, which is official in the U. S. Pharmacopeia as sodium biphosphate. While sodium biphosphate is used in medicine as a convenient form for the administration of an acid and as a saline laxative, Recresal is claimed to be indicated in all nervous affections, including neurasthenia, neuroses,



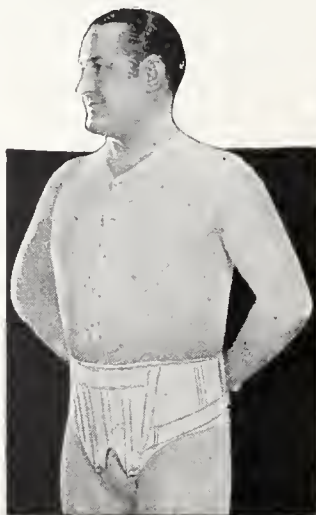
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physical and mental overexertion, etc., etc. During the World War, reports came from Germany that the administration of sodium acid phosphate had produced astounding effects on the German troops in the promotion of muscular activity and of fatigue. An investigation of the subject by the United States Public Health Service showed that the administration of acid sodium phosphate does not increase muscular efficiency and that the feeling of well-being which followed was to be ascribed to the laxative action of the substance. The Council finds Recresal unacceptable for New and Nonofficial Remedies because the exploitation of a well known drug under a proprietary, noninforming name is not in the interest of rational therapy; because the therapeutic claims advanced for it are unwarranted; and because the claims advanced for the preparation will lead to its indiscriminate and ill advised use by the public.—*Jour. A. M. A.*, May 3, 1930, p. 1406.

Rules of the Committee on Foods.—The Committee on Foods of the Council on Pharmacy and Chemistry publishes a revised statement of the information which should be submitted to the Committee by manufacturers who wish their food products included in the book, "Accepted Foods." The Committee will consider all food products for which health claims are made as coming within its purview. If the health claims made are satisfactory to the committee, in view of the composition and process of manufacture, the committee will accept the product for its book, "Accepted Foods," and will grant to the product the use of the seal of the committee. If the product is found to be outside the scope of the committee in that no health claims are made for it, and if the product and the advertising are otherwise satisfactory, the product will be exempted. A list of exempted products will be published in the book, "Accepted Foods," and such products will be permitted to be advertised in the publications of the

(Continued on Page 34)



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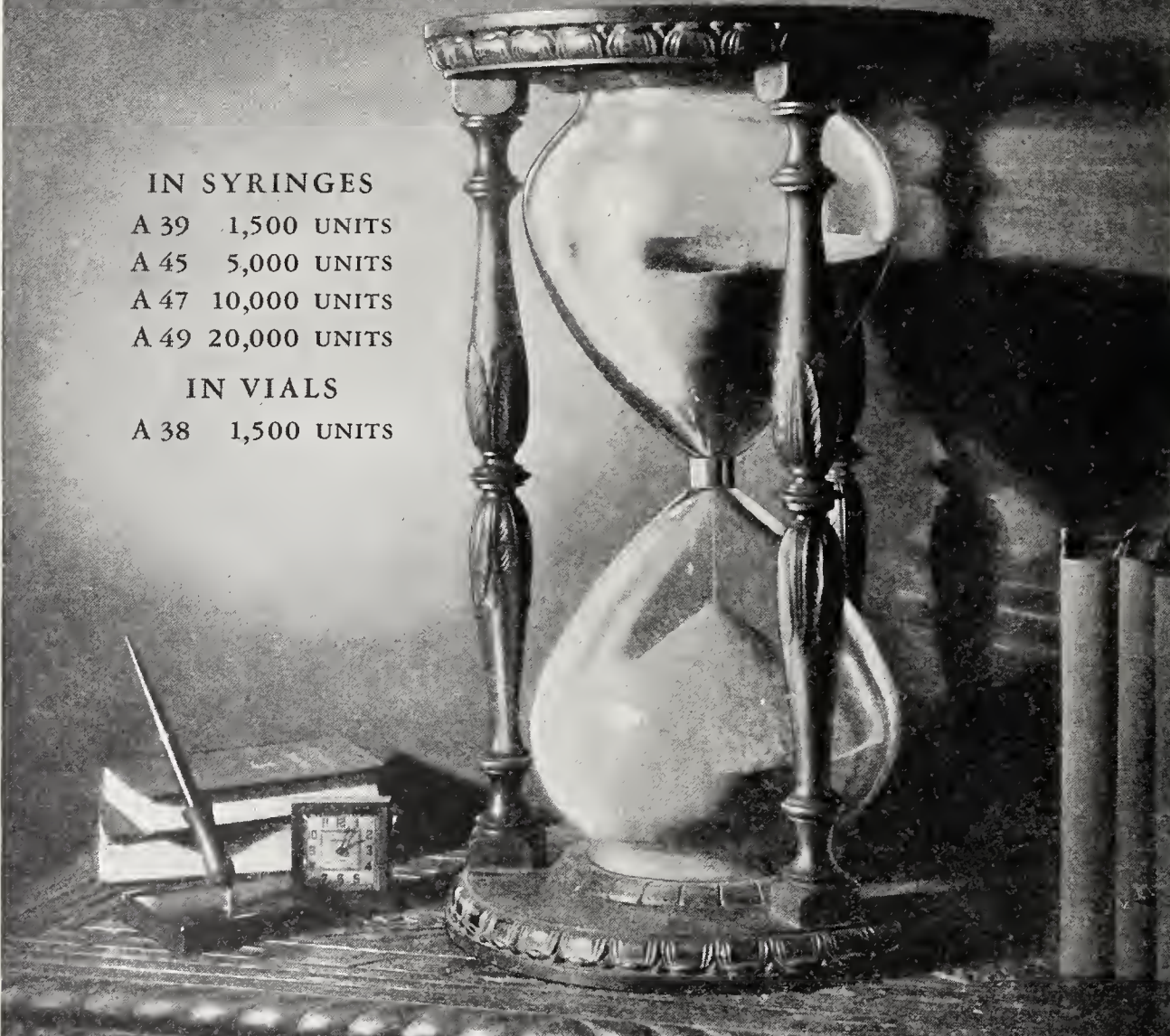
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CALIFORNIA AND WESTERN MEDICINE

VOLUME XXXIII

JULY, 1930

No. 1

THE DEEP MYCOSES IN THEIR SURGICAL ASPECTS—THE RÔLE OF LABORATORY DIAGNOSIS*

By FRED D. WEIDMAN, M. D.
Philadelphia

BACK of every assemblage, be it lay, or medical like this, of course there is a reason. The question can always be raised under such circumstances, "Why are we here?" To come immediately to the point—it is *fungus diseases* that you have chosen as a subject to engage such an outstanding institution as the California state meeting, and after that I dare say that it is the presence of a distant traveler like myself here that is the most cogent witness of the increasing importance of studies in general mycology and in your coccidioidal problem in particular. It is eloquent that you have seen fit to draft this willing conscript, involving over six thousand miles of time, thought and all that go with them.

This symposium, too, is something of a commentary—a compliment, on the level of medicine as practiced in California. By this I mean that, by and large, the type of subject engaging medical or other thoughts generally has its strongest appeal in connection with the bread and butter of everyday life; that is, for us, syphilis, tuberculosis, cancer, acute infectious fevers, and so forth. It is only after we feel that we have become more or less thoroughly acquainted (or perhaps better—self-satisfied) with these outstanding problems that we feel justified in undertaking adventures into less traveled fields in which the sights are at least new, even though they be less frequently met. Thus, to be concrete, the general practitioner, even if not a qualified expert, knows his pulmonary tuberculosis—after a number of years can arrive at a reasonably sure diagnosis. But now, while he still constitutes a real service to mankind at large, in the ordinary course of events he will encounter knotty and unusual cases from time to time where he will come to a standstill as to the final diagnosis; indeed, such cases are the ones that will be lasting memories with him—upstanding and permanent hurdles which he will view in retrospect and which will comprise the fascinating (or disgusting) problems to

vary the monotony of an otherwise colorless experience. Unless this practitioner is acquainted with the existence of such other mimics of tuberculosis, as syphilis, bronchiectasis, pulmonary spirochetosis, yeast infections, coccidioidal granuloma, aspergillosis, and so forth, he will not alone rob himself of the variety which leavens the routine, but he will not be doing his utmost for his fellow man.

To come at last to the point I am leading to, I take it that this meeting and this subject connote advance in California medicine consistent with the advances California has made in horticulture, agriculture, mining, engineering, shipping, the motion picture industry and the other members of the long, long list. That is, I would not claim that fungi are becoming increasingly important as pathogens; the probability is that they have been of comparable importance for centuries past; it is not that they are themselves rare, but that their recognition is rare. Now that they are becoming recognized—now that they have elbowed themselves so relentlessly into your medical picture, we have the spectacle here of Californians addressing themselves to the new problem as they have so successfully to tularemia, bubonic plague, botulism, foot and mouth disease, rabies, and a host of other diseases.

So here we are gathered; I daresay in the largest assemblage of mycological workers the United States has ever known—Ophüls, Rixford, Morrow, Montgomery, Moffitt, Meyer, Bowman, Cummins, to mention only a part. We are all members of a convocation for devising ways and means against a problem which fortunately (unlike cancer) has become concrete and offers a definite target at which to aim. My own humble part is to give you what I have on the basis of experiences which have been spread, if anything, more into the academic than the practical aspects of mycology.

SCOPE AND LIMITATIONS

I am glad indeed that I have been relieved of the necessity of including the superficial mycoses. Even confined as I am today to the deep ones, it is still a very large order, and you may well imagine that it will be necessary, and doubtless agreeable to you, that I but give you a general panorama of the situation. But at the same time, I will take the liberty of dipping into details from place to place where it becomes necessary to clear up certain misunderstandings that are particularly

* From the Laboratory of Dermatological Research, University of Pennsylvania.

* Read before the joint meeting of the sections on Pathology-Surgery of the California Medical Association at the fifty-ninth annual session, Del Monte, April 28 to May 1, 1930.

rife; which have baffled me in the past, and may save you some trouble. From conversations I have had, I take it that the average general pathologist of today is in very much the same situation mycologically that I was when I finished a ten years' training in general and special pathology under such masters as Allen J. Smith, Joseph McFarland, and Herbert Fox. With this realization I shall feel much less embarrassment in dwelling upon certain fundamentals.

As suggested, I shall confine my remarks to the following fungus diseases: streptothricosis (including actinomycosis), blastomycosis, torula infection, coccidioides infection, sporotrichosis, and miscellaneous ones such as Madura foot and "gummatous ulcers"; whereas, as tintured in the title, this presentation has two phases, one clinical and the other laboratory, I trust that they will be found to overlap just as all of our specialties overlap in best modern practice.

THE SURGICAL PHASE

In order to bring the matter home to you as forcibly as possible, I am going to ask the surgeon that he imagine, just for a moment, that there were no such institutions as the microscope, the test tube, the laboratory, and pathologist in general. Keep before your mind the list of deep mycoses already enumerated; that is, the streptothricoses including actinomycosis, blastomycosis, torula, sporotrichosis, and coccidioides. With syphilis and tuberculosis rampant as they are, what proportion of these mycoses do you imagine the average surgeon could pick up diagnostically? It goes without saying that the clear-cut cases of actinomycosis and Madura foot with their sulphur or other grains, the classical cases of sporotrichosis with the linear distribution of lesions along the course of lymphatics—a certain proportion of such could be separated from the general mélange of other indolent, ulcerative, sinus-producing, more or less proliferative, slowly destructive lesions of the skin, bone, and viscera. As to blastomycosis, most cases require dermatologic knowledge for diagnosis, but even here, as is even more the case with sporotrichosis, coccidioidal granuloma and the rest of the list, laboratory aides are becoming more and more requisite as we come to realize how varied the expressions of these deep mycoses may be and as we aim to approach 100 per cent efficiency instead of remaining satisfied with a respectable batting average. We have always invoked syphilis as the type example of a protean disease, but dermatologists by now know that tuberculosis is almost equally protean, and the California profession, I am sure, realizes that the mycoses likewise belong in the same list. Incidentally, the dermatologist is particularly appreciated when he relieves the situation with a diagnosis of bromid or iodid granuloma, or perhaps factitial dermatitis; all of these are conditions where he plays a unique part diagnostically.

I feel, therefore, that from the standpoint of surgical diagnosis, there are rather severe limita-

tions to the purely clinical approach. Only one or two of the mycoses named are clinically diagnosable 100 per cent under the best of conditions, and in the second place numerous cases of each will be so atypically expressed as to quite prevent the purely clinical diagnosis. Even the presence of syphilis and tuberculosis will not be final differential diagnostic criteria; with both diseases ubiquitous, it is quite obvious that mycosis may appear in a syphilitic or tuberculous subject equally as well as typhoid fever; this is all the more true in localities where fungus disease is endemic and where the factor of statistics thus does not play so large a differential part. Indeed, I feel that *the association of tuberculosis with mycosis should be tested with every case of proved mycosis*; certainly it is a principle that fungi become invasive much more readily in connection with preëxisting diseases. We have found this to be the case in connection with pulmonary aspergillosis of birds at our Philadelphia Zoölogical Garden^{1 2}; this point should be further inquired into as a generality for human mycotic disease.

The Therapeutic Phase.—The moment one mentions therapeutics in fungus diseases, the medical mind automatically turns to iodine. If there is such a thing as a list of specific remedies in medicine, iodine belongs on it in connection with the mycoses in general. Not that it is invariably a specific for a given mycosis, or that it is a specific for every mycotic disease, but as much can be credited to it as a specific as to mercury and arsenic in syphilis, iron in the anemias, quinine in malaria, and so forth. In none of the instances cited is specificity invariable and absolute. With iodine so useful, hence it is that, again, as in syphilis, essentially surgical procedures have limitations in connection with mycotic disease in general. By and large, in blastomycosis, sporotrichosis and some of the streptothricoses, the scalpel (certainly in the earlier stages of the disease) has no place until iodine has been tried. How well I recall that, as a resident, I assisted my chief to excise a "sarcoma" of the thigh; only when the clean wound declined to heal, and iodids were successfully resorted to, were we disillusioned. The patient had syphilis.

Streptothricoses.—To be a little more specific, I should say that in the deep streptothricoses, including actinomycosis, surgical treatment has in general proved unsatisfactory. Exceptions, it is true, there are. Iglick of Orland, California, has reported such success with you, but it was in a scalp case; that is, superficial as the surgeon views it. The experiences of Ophüls, Woolsey, Pritchard, Black, Rinkenberger, Caglieri, Frick, Loiseaux, all Californians, find place in Sanford's and Voelker's³ exhaustive compilation on actinomycosis. Of these, Caglieri's patient was operated upon and died, one of Black's refused operation and recovered (the follow-up notes are not supplied of his second case), and Iglick's patient was cured with potassium iodid. True, Iglick's was

a scalp case; and Ruhrah notes that cutaneous forms are decidedly hopeful as to prognosis. Ophüls' five cases had only a postmortem significance, but were valuable in indicating one of the factors concerned in inducing pulmonary gangrene. His organisms were not the conventional ray fungi but their first cousins, the streptothrices.

On the other hand, dermatologic experience is replete with examples of success where large doses of iodid (upward of 480 grains in twenty-four hours) has been accompanied by radiation. It appears that the combination of these two agents is necessary for consistent and optimum results. In streptothricosis (that is, where the organism concerned belongs to the threads, like actinomyces, but in which the ray arrangement does not take place) the same considerations obtain. In these latter we have, however, a much smaller group of materials from which to make deductions; the technical mycological study of these microorganisms has not been undertaken as fully as it should. Groupings cannot be made, and therefore no generalizations.

Incidentally, the concretions of the lachrymal duct which are commonly indexed as due to actinomyces, are not due to a ray fungus but simply to tangled threads of a streptothrix (*Actinomyces foersteri*).⁴ The organism is not a true pathogen, but produces disease only by its mechanical effects. The calcification is a secondary development.

Blastomycosis.—This is not essentially a surgical disease therapeutically. In the cases which have escaped recognition for many years and where extensive destruction of tissue has taken place, of course surgical corrections are indicated. In the early stages, however, iodids have the outstanding preference. The only exception to this rule that I know is a unique case where the organism assumed unseemly acute infective and invasive propensities and rapidly metastasized from the hand along the lymphatics into the axillary nodes. In this case the prompt and complete excision of the primary focus was performed solely for the purpose of eliminating the major reservoir of dissemination in the case. Intensive conjoined iodid and x-ray treatment resulted in a complete and apparently permanent cure.

Deep Torula Infection.—From the practical standpoint, this at present concerns mostly the meninges and brain. Here, obviously, iodine medication and x-ray are indicated, inasmuch as the disease is a widespread, diffuse one, and so located as to be impossible of surgical eradication.

Yeast infection of bone extends back to Busse's⁵ original classic of 1895. Since then, Brewer and Wood,⁶ as well as Connor,⁷ have reported cases in the American literature. I have had personal experience with cultures from pus from a case of osteomyelitis in the tibia of a child (Buzby's case).⁸ Channel operation and iodides resulted in complete cure.

In the genito-urinary tract we know of but few reports of yeast infection. This is rather surpris-

ing in view of the predilection which yeast infection has for the kidneys of experimental animals. Perhaps they are overlooked.

Sporotrichosis.—As in the case of blastomycosis, this should concern the surgeon operatively only when the disease has progressed far, has been neglected, and destroyed tissue to the extent that trimming up becomes necessary. Generalized cases of this disease are of course widely known. Even in those cases where operative procedures are in order, it goes without saying that iodids should be conjoined.

In the eye, sporotrichosis should not be forgotten; a localization over the lachrymal duct should provoke thought toward sporotrichosis. The Giffords⁹ of Omaha have done us real service in this connection. It is obvious what a boon iodid therapy is in a situation like this.

Coccidioidal Granuloma.—This is your field, and I cannot bring anything to you in re surgery. From what I have heard, the newer copper and antimonial therapy is only promising in the early cases or in cases like Guy and Jacobs,¹⁰ where the organism is of attenuated virulence. After that I take it that the operative treatment is of the same order as that for tuberculosis.

Under the "miscellaneous" heading I shall have nothing to say about the surgical aspects because the cases are quite too scattering etiologically to justify general remarks. In general, the diseases under this heading have the general characters of tuberculosis or syphilis, with gummas or gummatous ulcers picturing their low, indolent course, but caused by a wide variety of fungi (hormodendrum, mucor, cephalosporium, and so forth). They will be discussed in greater detail in the section on laboratory diagnosis.

Summary.—As the problem of the surgeon mycosis introduces itself first in *differentially diagnosing* certain subacute gummatous and ulcerative states which are analogous to tuberculosis and syphilis. By and large, this problem is more calculated to be solved by the laboratory man than by the Simon-pure clinician. Even where the diagnosis clinically appears quite clear it is generally advisable to confirm it by the laboratory test; even sporotrichosis may be mimicked by tuberculous lymphangitis of the extremities. After diagnosis the problem of *therapeutics* presents, and here again those procedures which are accredited as surgical are only applicable in selected instances. The experience of the dermatologist in the technique of intensive (intravenous) iodid and iodine medication, the application of x-rays, the administration of colloidal copper, antimony, and so forth, should be taken advantage of. After that there will still remain numerous instances where the life-saving skill, or at least the life-prolonging skill, of the surgeon must be gladly utilized.

LABORATORY DIAGNOSIS

The concern of the surgeon in the diagnosis of the mycoses will not stop at this point. Not

that he would, should, or could, busy as he is with his own specialty, master all angles of a complicated subject like mycology. He would do well, however, to have a general perspective of the scope and limitations of the laboratory diagnosis of the mycoses. Thus, I have already, in another place (11), indicated that pathologists, by and large, concede that they are woefully remiss in their mycological training. At once I would hurry to point out that this is no fault of theirs, but in the final analysis is due to the comparative infrequency with which calls for mycological examinations are made. That is, in routine laboratory work the bacteriologic and histologic aspects, and so forth, far overshadow the mycologic ones. It thus becomes physically impossible for the average pathologist to be expert also in the rarely trodden mycologic field. In California you are much better off than in other parts of the United States because the mycoses bulk much larger in your problems and your pathologists have learned to adapt themselves to at least certain needs; their average for mycologic efficiency rates much higher, I am sure, than elsewhere in the United States. As I see it, the solution lies not in requiring every pathologist to become proficient in all of the minutiae of mycological biology and diagnosis, but to create at least a few mycological centers geographically placed throughout the United States; an expert mycologist being located in each and having facilities to check up on the problems which are too much for the general pathologist at large.

After this the surgeon will readily see that he should have his ear constantly to the ground as to the mycologic qualifications of an otherwise perfectly efficient pathologist.

And then there is the contre coup. What is just as important, he may be glad to save himself some chagrin in respect to the tissue samples which he forwards (or does not forward) to the pathologist. Let me first beg for more and yet more *biopsies*. The procedure is so simple, so safe, and in many cases so illuminating and unequivocal that it ought never to be omitted in a section like California as long as the slightest doubt remains as to the diagnosis of a gumma-like ulcer. Even though the Wassermann reaction be positive, and even though the tubercle bacillus be demonstrated in smears, I feel that it is still incumbent, if not more than as a measure of California patriotism, to at the very least inquire for coccidioidal granuloma. You must determine whether these diseases are associated and whether it is this which is confusing you. The situation is much simpler than with the histologic diagnosis of/between tuberculosis and syphilis; you are fortunate in that coccidioides, in the present state of our knowledge, is invariably to be found if present, and is so large that it can scarcely be overlooked.

Likewise let me beg of you to request a larger number of *autopsies*. No doubt you are surfeited

by now with this appeal—it has become tiresome, but I would call your attention to an additional consideration in California that does not obtain elsewhere, that is, the magnitude and the menace of your coccidioidal problem; apart from the humanitarian aspect, what it means to your public health and this in turn to your economics. Is it the Mediterranean fruit-fly of your public health? I need but mention man-power, industry, labor problems, state appropriations for hospitals, sanatoria, and poorhouses to conjure up for you the ramifications of an endemic disease of the gravity of coccidioidal granuloma. You have made a worthy step in already making the disease reportable, and now, by correlating the morbid anatomical findings with the different systems of treatment employed; by detecting different grades of virulence in the different strains of microorganisms as shown by effects upon the viscera; by checking up on the question of an associated tuberculosis, syphilis, etc.—only by this order of attention and effort can the necessary funds of information be secured which in the aggregate will enable you to approach your problems on a secure foundation and after that with 100 per cent efficiency. Furthermore, as every investigator knows, some of the most worthwhile findings are those which develop only incidentally, as side lines in connection with work which was planned in quite a different direction. No one knows, when embarking upon an autopsy program, just what findings are quite unexpectedly going to be thrust upon him. Play the game with the pathologist; do not let him go it alone!

MYCOLOGIC TECHNIQUE

To the pathologist directly I cannot deliver a message except as conditioned, that is, expeditiously. Therefore I am confining myself to a table of amplified aphorisms, if you will, in re technique. This has been arranged on the basis that he is better acquainted with bacteriological technique than I am and that therefore I can place my materials before him most efficiently by beginning where bacteriology leaves off and thereafter indicating certain respects in which mycological technique differs from the bacteriological.

Use of NaOH in Direct Preparations.—NaOH (10 to 30 per cent) induces a difference in refractive index between fungus substance and the surrounding medium; this, in conjunction with the comparative grossness of fungus structures, has a use in mycology which it does not have in bacteriology. Except when extremely delicate fungi are to be expected like the streptothrices, it should never be omitted in immediate direct examination “in the wet” of pus, scrapings, tissue—in fact, any samples of material. The cutaneous fungi—blastomyces, coccidioides—indeed even the fine threads of *Microsporon minutissimum* may be readily identified thus. As far as I know, the sporotrichums resemble the nuclear fragments of leukocytes to such an extent that the diagnosis of sporotrichosis in direct prepa-

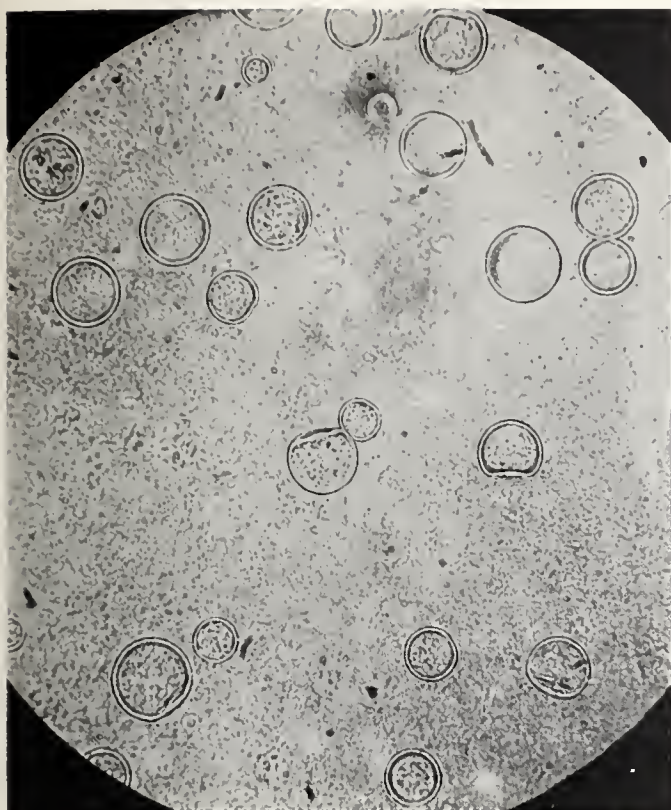


Fig. 1.—Effect of NaOH (10 per cent) in clearing pus preparation from experimental coccidioidal granuloma in guinea pig. Example of pseudo budding near center of illustration; actually it is but a matter of propinquity, referable to association of the two as originating in a common "ascus."

rations is not practical. Cultures have to be depended upon.

Staining Methods.—These have limited place, certainly as compared to bacteriology, because fixation by heat is calculated to distort a larger mass of material such as obtains in many fungus structures. In the event that it is felt that finer details of structure must be realized, such as cannot be secured short of staining technique, fixation should be performed by "wet" techniques such as are used in protozoology. To be sure, some sort of results may be secured by ordinary bacteriologic methods or indeed sometimes good results will more or less fortuitously occur, but to secure optimum and consistent results day in and day out it is felt that the foregoing modes of procedure will be of advantage.

Staining "In the Wet."—To avoid distortions incident to dry fixation (particularly with large yeast cells) most materials may be stirred into a small drop of undiluted Giemsa stain¹² and examined directly under the coverslip in this medium. The glycerin content effects a certain clarifying influence, but of course lacks the softening qualities of NaOH which are so desirable when examining tough materials like keratin. After about fifteen minutes, staining will have developed; accelerated by exerting pressure on the coverslip, as by tapping. Thereafter, grades of differentiation may be induced at the discretion of the observer by flushing distilled water from one side of the coverslip to the other.

India Ink Technique.¹³—This, performed in the wet, is a modification of the well-known Burri technique. Its justification is in demonstrating otherwise invisible or difficult to stain accumulations around (particularly yeast) cells such as are present in gloea formation. Yeast cells in fluid medium are the formations particularly susceptible to this technique, although other circumstances might arise for its employment. It is restful to the eye in prolonged observations.

Permanent Staining.—None of the preceding are suitable for permanent staining. As a matter of fact, whereas a wide range of dyes will stain the internal structures of the fungus cell, there are none which satisfactorily bring out the fungicellulose wall externally. Thus far I have found osmic acid the most serviceable; it stains fungicellulose faint brown. Of course, a counterstain may be superadded if it is desired to bring out internal structures yet farther. We critically need a *specific* stain for fungicellulose; from the fact that its composition is prone to vary *in vivo* with its environment, it is quite possible that by preliminary treatment *in vivo* with substances such as iron, such a specific stain might be developed.

Sabouraud's Medium.—This is a thing of the past—at least as originally postulated. Professor Sabouraud has personally communicated to me that he no longer uses crude maltose. The originally recommended Chanut brand is no longer on the market; indeed, Sabouraud has recently recommended honey as a substitute.¹⁴ From work in my laboratory,¹⁵ I feel that crude American glucose is an efficient substitute. Particular pains must be taken, however, as to the brand of peptone employed. The originally recommended

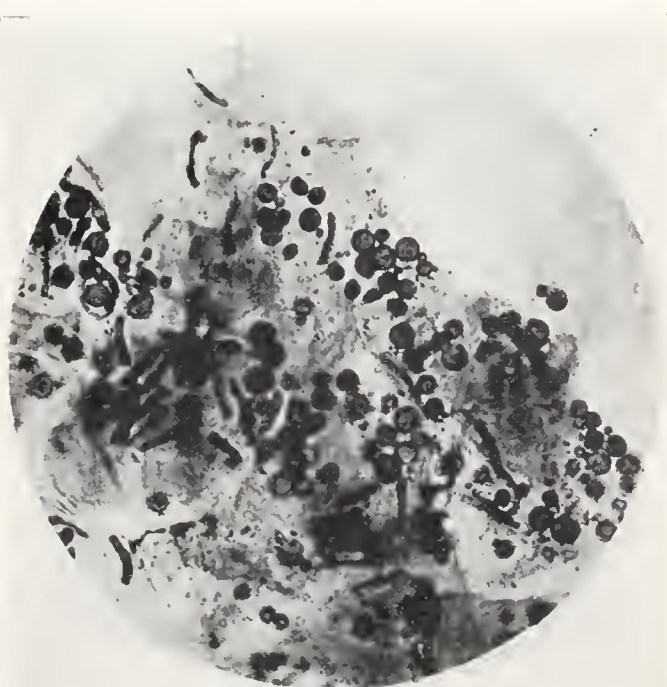


Fig. 2.—Scrapings from tinea versicolor to illustrate possibilities of staining "in the wet" by Giemsa. Both *Microsporon furfur* and bacteria are brought out in this material.



Fig. 3.—Employment of gentian violet medium in securing pure cultures.

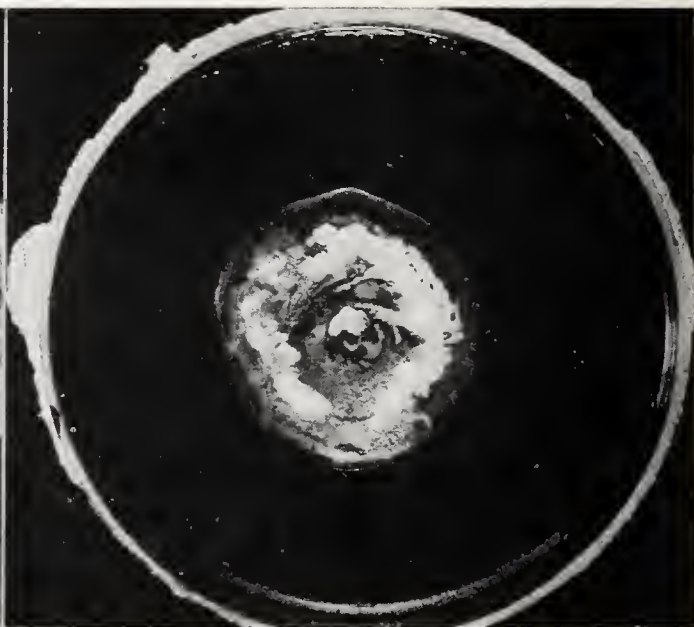


Fig. 4.—Same materials as in Fig. 3, but without gentian violet.

Chassaing is still available* and should be adhered to where it is proposed to faithfully elicit the standard gross cultural characteristics.

Fungi, considered by and large, develop well at such a low P^H as the 4.6 of Sabouraud's medium, besides at the $7.1 < >$ of bacteriologic media. This low P^H is automatically taken care of by the employment of Chassaing's peptone. It is of course particularly well known that carbohydrate (glucose) promotes luxuriance of growth in this class of plants. The advantage of luxuriance (but only provided it takes place under perfectly standard conditions) lies in the fact that thereby a particular conformation will be induced in the colonies, the different configurations being contingent upon the different permutations and combinations of factors like luxuriance, texture, moistness, production of conidia (powderiness), coarseness of hyphae, and so forth. Glucose is also calculated to bring out a pink (or other) color in colonies which otherwise may be latent.¹⁶

It should be distinctly understood that the rank and file of fungi will also grow on standard bacteriologic media and that the function of the glucose in mould mediums is in the direction of inducing gross characteristics. Indeed, glucose-free medium has some advantages (prevention of pleomorphism) for carrying along cultures in the laboratory.

Securing Pure Culture.—The low P^H previously mentioned eliminates a large number of contaminating bacteria; however, additional help-meets may be secured in special cases where it is found that this does not suffice. Inasmuch as both the hyphomycetes and the yeasts withstand gentian violet in concentrations of from 1:100,000 up to 1:2000, this agent may be employed as a restrainer, at least for the Gram-positive bacteria. A preliminary "drying out" of materials like pus over a period of two to three days does not vitiate

some fungi, but will destroy many bacteria. This experience has been known to be very valuable in isolating blastomyces and sporotrichum. It is to advantage to crush coarser particles of fungus substances like the grains of Madura foot and actinomyces before planting.

Repeated examinations are often necessary before finally securing a positive result. Only by a realization of this peculiarity, or better by experience, will the laboratory man bring the full complement of mycotic cases to light. This holds good not alone in superficial dermatoses but also in blastomycosis and sporotrichosis. Positive cultures, however, fortunately for you, are rather regularly obtained in coccidioidal cases.

Direct Examination of Culture Tubes on the Microscope Stage.—Advantage should be taken of the grossness of fungus structures by resort-

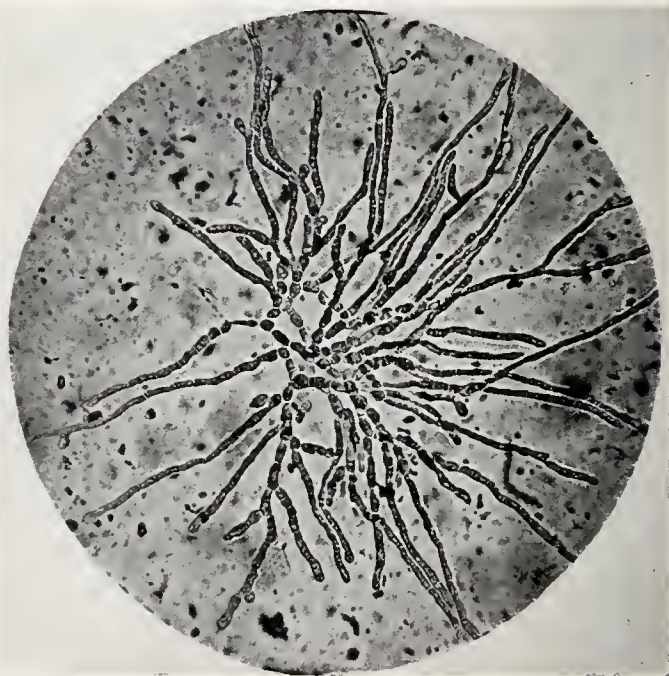


Fig. 5.—Hanging drop preparation of *Sporotrichum councilmanii* about five years old.

* Dolbey and Company, 3627 Woodland Avenue, Philadelphia, Pennsylvania.

ing to this method. By selecting thinner positions, like the uppermost, drier portions of the medium, and at its margins, the finer details of architecture may be readily determined as the fungus extends more or less out onto the walls of the tube. Of course only such information as will be secured by low powers of the microscope is avail-

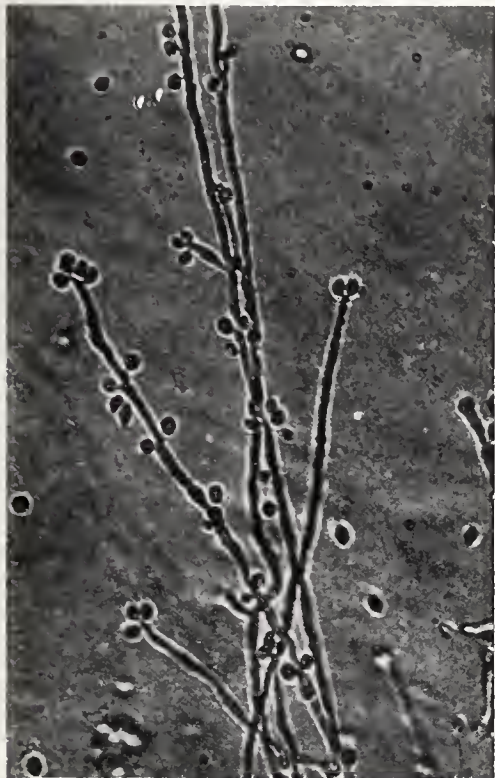


Fig. 6.—Illustrating how delicate the attachments of conidia are to hyphae in *Sporotrichum schenckii*. Since the grouping and arrangement of such conidia are essential to determination of the genus, the superiority of hanging drops over standard bacteriologic smears is obvious.

able in this way. Advantage may be taken of this maneuver to detect the earlier stages of growth of sporotrichum, planting material immediately at the edge of the substrate. Under these circumstances, one can recognize germinating fungus cells, when present, within from twenty-four to forty-eight hours. This does not, of course, suffice to determine the species, but indicates, when present, that fungi are present in the materials, and this information taken into consideration with the clinical circumstances may be sufficient to justify prompt embarkation upon anti-fungus treatment.

Hanging Drop.—Due to the complex architecture of fungus colonies as compared to bacteria, information is gained in the hanging drop as it is not for the bacteria. The particular grouping of spores along hyphae, spiral formations of hyphae, modes and frequency of branching, and so forth, are not distinguishable in ordinary smear preparations because the formations are likely to become disarranged. Due to the bulkiness of the fungus colonies and the necessity for a certain amount of oxygen the chamber of van Tieghem is the choice. In using it, sufficient time should be allowed for the full development of all the

differential “organes” that may be expected to develop—on the average, three weeks. It is difficult to secure *permanent* preparations of the latter without disarranging the more or less delicate attachments and arrangements of spores, etc. In my experience, the closest maintenance is secured by fixing in *vapors* of osmic acid, succeeded by hardening in *vapors* of alcohol. After this, the preparation may be allowed to evaporate just short of dryness, and mounted in Farrant’s medium.

Clearing Agents.—Inasmuch as some of the fungi, as for instance those in Madura foot, are deeply pigmented, certain details may be difficult to make out microscopically. Sometimes potassium hydroxid will correct—is sufficient for clearing; if not, a proprietary, diaphonal,* at once bleaches and clears the preparation in a remarkable way. It acts too energetically (overclears) for routine fungus work, but for extremely thick material and deeply pigmented ones it is quite serviceable.

Iodids and Bromids in the Urine.—Inasmuch as these halogens may induce fungating, ulcerating granulomas of the skin, the pathologist should be prepared to bring the urinary data into service. The starch test for the former I scarcely need mention; for bromin, the Wile-Belote¹⁷ technique, employing fluorescin paper, should be taken advantage of. To five cubic centimeters of urine add a few crystals of potassium permanganate followed by one cubic centimeter of concentrated sulphuric acid. Test fumes of free bromin by filter paper strips dipped in fluorescin solution (change from faint yellow to pink).

Torula in Spinal Fluid.—In view of the occasional rôle played by this class of microorganism, the fact that they have been mistaken at first for red blood cells¹⁸ and the fact that the possibili-

* Leitz, Inc. New York City.

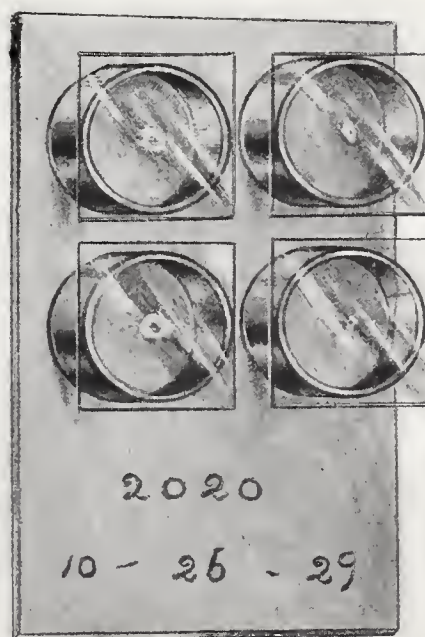


Fig. 7.—The van Tieghem cell. Units united and hermetically sealed with vaselin. Plantings are routinely made in quadruplicate in this laboratory.

ties of cerebrospinal treatment with iodid has not been exhausted, the routine inquiry for yeast in (selected cases of) clinically tuberculous meningitis appears advisable. This is all the more so in view of the absolutely black prognosis in this form of meningitis.

Leishman-Donovan Bodies.—As close as California is to Mexico, and with her flourishing coastwise commerce, I take it that routine preparations for Leishman-Donovan bodies should be made at least until the California profession has become thoroughly oriented as to the status of leishmaniasis here. With the Brazilians,¹⁹ leishmaniasis is an outstanding differential diagnostic problem in connection with blastomycosis and coccidioidal granuloma.

Actinomycosis.—I have learned by bitter experience that other microorganisms than actinomycosis may produce radiating and more or less concentrically zoned colonies of large size which closely mimic ray fungi. Davis²⁰ has rendered us a service in calling attention to these actinomyces-like granules in the tonsil. They are in no way related to true actinomyces and consist of bacilli, streptococci, and spirilla. They are not pathogenic. On the other hand, it will be recalled that true actinomyces are to be found in the tonsils of the hog.²¹

The actinobacillus²² of the veterinarian should be recalled when inquiring acutely into actinomyceslike granules. In every case the granules should be stained in tissue by Gram to determine whether there are streptothrix filaments in its interior; such must be invariably present in true actinomycosis. The roentgenologist will not be surprised when I remind that Sanford (loc cit) was not able to find a case on record at the Mayo Clinic (which is in an actinomycosis hotbed) where the bone was involved; this is in striking contrast to the lower animals, where osseous hyperplasia is such a conspicuous feature.

Madura Foot.—I only mention this to bring up the subject of the taxonomic determination of the rare and unusual species, genera, or even families of fungi which are calculated to be met in that affection. I have just determined, for instance, what appears to be *Scedosporium sclerotiale* in a case originating in Alabama.²³ Determinations of this sort, which are off the beaten path, are tremendous strains upon the time of the pathologist. The plant pathologist, on the other hand, is thoroughly familiar with such higher forms, and in a comprehensive plan for mycological centers such an individual should find place as a consultant on the staff. He is calculated not alone to help the pathologist play fair with himself, but to bring much in the way of technique and the most recent developments in fungous biology to the service of medical mycology.

Miscellaneous Fungi.—This paragraph finds place only to round out the list of deep mycoses. Apart from actinomyces, coccidioides, and so forth, already discussed, there are dozens of other

species which have been reported as more or less isolated examples of reputed pathogens (mucor, penicillium, cephalothecium, glenosporea, hormodendrum, hemispora, acladium, acremoniella, entanthamnia, etc.). They have occurred in ulcers or "gummo ulcers." Naturally, insufficient data have accumulated to permit any generalizations being made; the concern of the pathologist at present is in identifying the species and recording it as fully as possible for future use in collecting and analyzing such cases.

Animal Inoculation.—Discretion must be exercised in selecting the laboratory animal. For sporotrichosis the rat is of choice, for blastomycosis the mouse and rat, while for coccidioidal granuloma the guinea pig is quite susceptible. In view of the extreme insusceptibility of rabbits to sporotrichosis and blastomycosis, it is probable that for each fungus a standard curve of pathogenicity could be constructed as reckoned upon the different laboratory animals. This would be of service in evaluating the virulence of different strains of coccidioides, etc., and I believe should be among the earlier items to be established in research on coccidioidal granuloma. The dog has not been sufficiently employed, and should not be omitted when anything like comprehensiveness is aimed at. It has been found most useful in immunologic work on aspergillosis.²⁴

Immunology.—Advances have not taken place in this field to the extent that they have in the bacteriological because bacteriology ought to, always has, and always will overshadow mycology. An equally weighty reason has been a notorious lack of specificity, most striking in the skin tests but also obtaining in the complement fixation ones. The agglutination tests for sporotrichosis, indeed, have until very recently stood rather alone in diagnostic value. At all of the others severe and well-deserved criticism has been leveled.²⁴ The probability is that the antigens have not been sufficiently fractionated and that what fractions are obtained are group ones largely referable to fungicellulose more or less *per se*. It is notoriously discomfiting that the tuberculin test is positive in even some of the superficial mycoses, to say nothing of the deeper ones, and vice versa. In re coccidioidal granuloma, the recent publications of Jacobson²⁵ and of de Fonseca²⁶ are distinctly encouraging; all that is needed is confirmation of their results.

Mycologic Centers.—I have already hinted at the very special position which mycology occupies in medical biology. Perhaps in the preceding paragraphs this has been exemplified. After this it goes without saying that the Pacific Coast is beyond question one of the regions which should be represented by a mycologic center; geographically, economically, and now opportunistically, it deserves this advantage. A stock culture collection of fungi is maintained, it is true, in Chicago,*

* American Type Culture Collection, John McCormick Institute for Infectious Diseases, 637 South Wood Street, Chicago, Illinois.

but that is only a part of a large whole. As stated elsewhere, it is too much to expect that pathologists become thoroughly versed in the intricacies of mycology; indeed, it is quite unnecessary. Such a center should have, however, at least one mycologic expert as departmental head, with one or two assistants and appropriate technical personnel as a beginning. To finance such a center I have only to cite the "Golden State"; the ability and materials which you have here are unsurpassed anywhere in the United States.

As we conclude, and look backward over the path we have traveled this morning, let us do it California-wise. Perhaps there are three eminences that dominate the landscape: first, the grumbling volcano "coccidioidal granuloma"; secondly, the butte "clinical"; and thirdly, the potentially commanding peak of all—laboratory examination." Equip the last, now, as a mycologic center and thereupon with the assistance of "butte clinical" you become dynamically commanding. Advances you are bound to make against coccidioidal granuloma and the other deep mycoses, if by no more than sheer effort, with your present forces; they will work much more efficiently, however, with the reinforcements added from a mycologic center.

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PULMONARY HEMORRHAGE*

AN INVESTIGATION OF THE EXCITING FACTORS IN TUBERCULOUS HEMOPTYSIS

Clinical Prize Paper of the Fifty-Ninth Annual
Session of the California Medical Association

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INTRODUCTION

PULMONARY hemorrhage is one of the most fearful and most frequent of the complications of pulmonary tuberculosis. According to Osler more than half of the patients with this disease suffer from some degree of pulmonary hemorrhage during the course of their illness. Since tuberculosis is responsible for nearly one-tenth of the average annual death rate, every twentieth person in this country suffers from hemoptysis from this cause at least once during his lifetime. It may appear as the first symptom in a person in whom the existence of tuberculous infection has never even been suspected, or it may occur as the last fatal event in a long-drawn-out struggle with chronic fibroid phthisis. Nevertheless, in spite of valuable work that has been done in the clinical, pathological, and experimental investigation of this phenomenon, pulmonary hemorrhage remains today nearly the mystery to the physician that it presents to the layman.

Pulmonary hemorrhage usually appears in the course of an advancing tuberculous process in the lungs, but why it appears when it does and under the conditions that usually prevail at that time is little understood. It is not a necessary consequence of the destructive lesion, since the tubercu-

* From the Olive View Sanatorium of Los Angeles County.

* This paper was submitted under the nom de plume "Philo" and was awarded the Clinical Prize of \$150 at the fifty-ninth annual session of the California Medical Association, April 28 to May 1, 1930. This being a paper for which a prize was awarded by the Association, it is published in its entirety. Graphic charts of tables will be appended to the reprints.

lous process is commonly preceded by thrombosis of the blood vessels before the tissue necrosis occurs. Thus it has even been observed that hemorrhage is even less likely to arise from an acute rapidly progressive type of disease than in the chronic fibroid cases. Perhaps some other exciting factor, in addition to the tubercle bacillus, is necessary to produce this manifestation. It is in the hope of elucidating some of the varied aspects of this problem that the present study has been undertaken.

FREQUENCY OF HEMOPTYSIS

During the past two and a half years, since May 15, 1927, careful record has been kept at the Olive View Sanatorium of Los Angeles County, of all pulmonary hemorrhages which have occurred among the patients there.* More than three thousand such hemorrhages have been so reported, arising among three hundred and thirty-three patients, or about 15 per cent of the more than two thousand patients who have been cared for in the institution for the whole or part of that time. This is somewhat lower than has been

TABLE 1.—Hourly Incidence of Hemoptyses

Hours	A. M.	P. M.	
12 - 1	82	102	
1 - 2	118	80	
2 - 3	98	78	
3 - 4	88	125	
4 - 5	87	110	
5 - 6	149	120	
6 - 7	252	138	
7 - 8	214	164	
8 - 9	137	127	
9 - 10	85	88	
10 - 11	83	96	
11 - 12	89	91	
Total	1482	1319	2801
No record			315
Total			3116

TABLE 2.—Daily Incidence of Hemoptyses

Day	Total	Average
Sunday	447	3.27
Monday	446	3.26
Tuesday	461	3.36
Wednesday	441	3.22
Thursday	426	3.11
Friday	439	3.21
Saturday	456	3.33
Total	3116	3.25

TABLE 3.—Monthly Incidence of Hemoptyses

Month	1927	1928	1929	Average
January	74	46	60	
February	103	24	63	
March	135	45	90	
April	112	111	111	
May	23	88	98	78
June	152	67	95	98
July	125	109	107	114
August	80	99	45	75
September	145	143	64	117
October	180	140	52	124
November	152	130	107	129
December	69	102	56	89
Total	964	1302	850	99 (3116)

reported elsewhere, but these patients have been under strict sanatorium regime, and many more of them had had hemorrhages before admission to the institution. As has been previously noted, tuberculous pulmonary hemorrhages are not uniformly distributed in time, but exhibit a marked tendency to occur in groups. An analysis of this periodicity may, perhaps, lead to a better understanding of the responsible factors.

* The name of the institution and other identifying references were lacking in the manuscript, but have been inserted by the editor.

DIURNAL VARIATION

The time of day at which the pulmonary hemorrhages occurred was obtained in about twenty-eight hundred instances, and tabulated according to the number of hemorrhages occurring in each hour. This showed a maximum during the hour six to seven in the morning, and another smaller peak from seven to eight in the evening. The morning peak shows three times as many hemorrhages during this one hour as during any hour of the night, and suggests that there must be some simple explanation for this preponderance.

The coughing that ensues when the patients arise from their sleep, in the effort to expel the secretions which had accumulated in the lungs during the night not only involves a considerable amount of movement of the lungs and other structures, with sudden marked changes in intrapulmonary pressures and stresses, but also increases the blood pressure, both in the systemic and the pulmonary circulation. The increased activity at meal time, which occurs at 6 a. m., noon and 5 p. m., rather than any physiological effect of the ingestion of food, may account for the increased number of hemorrhages at these hours. The lowest number of hemorrhages appear during the periods, both day and night, when the wards are quiet and the patients are supposed to be at complete rest. The varying curve of vital functions during the day, the relationships to the curve of temperature, pulse, and blood pressure are in accord with such a view. The diurnal changes in the barometric pressure, with maxima occurring in the morning and evening, may be of real significance, since, as shall be shown later, the barometric pressure appears to bear a direct relationship to the incidence of pulmonary bleeding.

Careful study of the relative incidence of hemoptyses on the different days of the week showed no consistent variation, any difference being well within the chance distribution of this array of data. The fact that visiting days are Sunday and Wednesday had no evident effect on the resultant pulmonary state, as shown in this data.

ANNUAL VARIATION

The periodicity of pulmonary hemorrhage is brought out again, however, when we consider the distribution at different times of the year. There is a definite maximum in the autumn, when the number of hemorrhages per day may average twice that prevailing at the time of minimal bleeding, in the winter. The fact that these seasonal variations do not concur with those reported by other workers in different places must be con-

TABLE 4.—Hourly Incidence of Deaths

Hour	A. M.	P. M.
12 - 1	40	33
1 - 2	31	34
2 - 3	35	45
3 - 4	23	46
4 - 5	37	42
5 - 6	48	46
6 - 7	46	37
7 - 8	47	37
8 - 9	46	33
9 - 10	46	23
10 - 11	43	34
11 - 12	46	31
Total	488	441 (929.)

TABLE 5.—Daily Incidence of Deaths

Day	Number
Sunday	86
Monday	78
Tuesday	77
Wednesday	70
Thursday	85
Friday	78
Saturday	81
Total, 555 deaths in 1096 days.	

TABLE 6.—Monthly Incidence of Deaths

Month	1927	1928	1929	Average
January	17	16	16	16
February	14	18	19	17
March	23	13	12	16
April	22	17	17	18
May	11	15	15	14
June	18	17	15	17
July	17	14	9	13
August	10	21	14	15
September	15	16	11	14
October	15	17	12	15
November	21	12	14	16
December	12	7	22	14
Total, 555 deaths in 1096 days.				

sidered in connection with the peculiar climatic conditions in this place. Thus the spring months, which have been stated to be accompanied by more hemorrhages in the East, are mild and equable in southern California, and lack the rigors of which other regions complain. The seasonal periodicity in the number of hemoptyses appears to be too great to represent merely a chance variation, and suggests a definite meteorological factor in the etiology of pulmonary hemorrhage. The various components concerned will be taken up in greater detail subsequently, but it may be noted that the autumn here is the period of the greatest variability of all of the meteorological factors in this vicinity, and it is, perhaps, the effort of the body to accommodate itself to these varying and abruptly changing states that induce the disturbance in physiological equilibrium resulting in hemorrhage.

VOLUME OF HEMOPTYSIS

The volume of the individual hemoptyses varied greatly, more than half of them being less than two ounces in bulk. It has been frequently stated that blood-streaked sputum and mere traces of blood should not be reckoned as of the same significance as a frank flow of blood, since fresh granulation tissue in the lung, tussive trauma, irritation of the postpharynx and larynx from hawking and spitting, etc., can produce these

TABLE 7.—Amount of Hemoptyses

Amount	Number
Not specified	264
Trace, streak or tinge	578
"Slight" or "clot"	248
Less than one ounce	365
One ounce	495
Two ounces	434
Three ounces	245
Four ounces	156
Five to ten ounces	242
More than ten ounces	89
Total	3116

slight traces without denoting the actual rupture of a blood vessel, which is the cause of true tuberculous hemorrhage. The volume of nearly three thousand hemorrhages, as reported, indicates that more than a fourth of them were mere streaks, stains or slight blood clots, and that a third of them were measured as less than one ounce in volume. The 1661 hemorrhages of one

ounce or more included only eighty-nine more than ten ounces, and only ten more than sixteen ounces, or one pint, the amount generally given for a blood transfusion.

PERIODICITY

For the purpose of this study, only those hemorrhages involving one ounce or more of blood have been analyzed further. This is thought to correspond to what is generally referred to by writers on pulmonary hemorrhage in phthisis, and should repay analysis better than the indiscriminate gathering of all reports including those of blood-spitting of doubtful or absent significance. The hemorrhages have been treated as units according to the nurses' reports, thus if the same patient was reported as having three large hemorrhages during the same day, it was listed as three separate hemorrhages. Analysis shows that the number of patients who have hemorrhages each day bears a close relationship to the total number of hemorrhages that occur.

There were 1661 hemorrhages of one ounce or more reported during the 960 days from May 15, 1927 to December 31, 1929, inclusive, or an average of 1.73 a day. Actually, however, there were no hemorrhages at all or more than a third of these days, so that the average number of hemorrhages occurring on the days on which any did take place was 2.66. More than one-third of the hemorrhages reported occurred on less than one-tenth of the days included in this study, and half of them on one-sixth. This brings out sharply the fact of the marked "periodicity" of pulmonary hemorrhage in tuberculosis, and suggests that there may be some extrinsic factors rather than mere chance to explain the marked irregularity in the incidence of this phenomenon.

Nothing has been found in the conduct and regime of the sanatorium which might influence this condition. The number of patients in the institution at any time has not varied by more than 10 per cent during most of the period studied. Moreover, at no time is there record of a large number of patients being admitted who began to bleed immediately after their arrival. The appearance of the curve of incidence, showing that the peaks are scattered throughout the entire time involved and not gathered at any one occasion, dispels the idea that there may be a single or a few coincidental accidental factors that may be responsible. The relationship to visiting hours and the excitement attendant

TABLE 8.—Frequency of Hemorrhages Per Day

Number of Hemorrhages per day	Number of days	Total Number of Hemorrhages
0	336	0
1	213	213
2	156	312
3	104	312
4	60	240
5	31	155
6	26	156
7	18	126
8	8	64
9	2	18
10	4	40
11	0	0
12	1	12
13	1	13
Total	960	1661

upon them, since visitors are admitted only twice a week at the Olive View Sanatorium, is discounted by the fact that there appears to be little difference between the number of hemorrhages on different days of the week.

CLIMATIC DATA

Patients, attendants, physicians, and others, have repeatedly asserted that particular climatic conditions are associated with these periods of increased hemoptysis. The descriptions given of such weather conditions are quite vague and inconsistent. Pottenger's suggestion of the "electricity in the air" and Browning's conclusion that changeability rather than any particular static factor in the weather must be blamed, are the most tangible statements that have been discovered. In view of these widespread impressions, therefore, and in view of the relationship that they might have to the long-urged climatic treatment for tuberculosis, it was deemed advisable to inquire more carefully into the relationship of the incidence of pulmonary hemorrhage with the various climatic factors actually encountered at this institution.

TEMPERATURE

In anticipation of the possibility of some such study, data had been accumulated for several years under the direction of Dr. W. H. Bucher, superintendent of the sanatorium. This included a continuous temperature tracing for the entire period, from which daily minimum and maximum temperature readings have been made; wet and dry bulb thermometer readings made daily, about the middle of the day, in an outdoor location protected from wind, sun, and rain, from which the relative humidity or moisture saturation of the atmosphere has been calculated by the use of appropriate tables; daily barometric pressure readings made with a mercury barometer about the same time of day; and wind velocity measurements, made with an anemometer, and the tracing examined daily for the greatest number of miles of wind blowing in any hour of the day or night. It is with this data that we are now concerned.

The maximum daily temperature at Olive View Sanatorium varies from about 45 to 116 degrees Fahrenheit, but it is not above 110 or below 60 degrees more than ten days in the year, and lies between 70 and 100 degrees more than two-thirds of the time. The daily range of temperature is generally around 30 degrees, never being more

than 40 degrees and occasionally falling to as little as 10 degrees, especially in the winter time. In general, the greater is the maximum temperature the greater the daily variation, the minimum temperature never rising above 82 or falling lower than 40 degrees, true frost never appearing on the record of the past three years. Through the kindness of Mr. Bert Hanneman, these figures have been compared with the reports which he makes to the United States Weather Bureau from San Fernando, California, about four miles from the sanatorium. Although a few degrees difference in temperature often occurs between these two sets of figures, the general agreement, particularly in the direction and amount of change, is quite satisfactory.

Examination of the records for the maximum daily temperature, shows that the incidence of pulmonary hemorrhage is greatest on the days when the temperature is highest, and least when the temperature is around the theoretical optimum, about 70 degrees Fahrenheit, or perhaps when the temperature is lowest, since the differences here are inconsiderable. This accords with the fact that the least number of hemorrhages occur in the winter time here, as has been found also by Anders in Philadelphia, but not by some other writers; but the low summer figures show that it is the hot days of autumn, rather than those of summer, which are accompanied by bleeding from the lungs.

HUMIDITY

Popular impression credits increased humidity with a causal relationship in tuberculous hemoptysis, and patients are often warned to avoid fog or damp climates, or themselves complain of moist weather. The undoubted influence of moist weather conditions in rheumatic afflictions, however, may not be of equal importance in tuberculous hemoptysis. The lowest number of hemorrhages appeared to occur on the days of approximately optimum humidity, *i. e.*, between 50 and 60 per cent saturated, and both drier and moister days were associated with slightly higher figures. The differences are perhaps too small for any dogmatic conclusions, but suggest that the popular impression may have some basis but that it should be supplemented by recognition of the fact that deviations from the optimum of comfort in either direction may be associated with increased likelihood of pulmonary hemorrhage.

TABLE 9.—Maximum Temperature and Hemorrhages

Hemorrhages per day	Temperatures (degrees F.)					No Record	Total Days
	100	90-99	80-89	70-79	-69		
0	40	74	79	86	50	7	336
1	28	50	54	45	36	0	213
2	20	33	37	37	25	4	156
3	16	25	28	19	15	1	104
4	12	15	8	11	12	2	60
5	5	7	11	3	4	1	31
6	5	4	5	8	4	0	26
7	3	6	5	4	0	0	18
8	1	2	2	2	1	0	8
9	1	0	0	0	1	0	2
10	1	2	1	0	0	0	4
12	0	0	1	0	0	0	1
13	0	1	0	0	0	0	1
Total days....	132	219	231	215	148	15	960
Hemorrhages	267	401	402	327	240	24	1661
Average	2.03	1.83	1.74	1.57	1.62	1.6	1.73

TABLE 10.—Humidity and Hemorrhages

Hemorrhages per day	Per cent Humidity					No Record	Total Days
	70	60-69	50-59	40-49	30-39		
0	21	35	39	79	63	71	28
1	12	19	26	50	41	45	20
2	9	15	14	46	32	31	9
3	7	13	4	33	25	11	11
4	8	5	7	13	10	12	5
5	3	4	0	9	6	3	6
6	1	0	3	4	7	7	4
7	0	3	1	5	5	2	2
8	1	3	0	1	0	2	1
9	0	0	0	0	1	1	0
10	0	1	0	1	1	1	0
12	0	0	1	0	0	0	0
13	0	1	0	0	0	0	0
Total days..	62	99	95	241	191	186	86
Hemor- rhages....	112	196	131	415	346	294	167
Average..	1.80	1.98	1.48	1.68	1.81	1.58	1.94

The figures for wind velocity are, unfortunately, quite fragmentary, observations being available for only about half of the days studied. These appear to indicate a beneficial effect of mild breezes, the number of hemorrhages being higher on days of excessive calm, and least when the wind ranged between eight and fourteen miles an hour.

TABLE 11.—Maximum Wind Velocity and Hemorrhages

Hemorrhages per day	Maximum Wind Velocity (In Miles)					Total
	0-3	4-7	8-14	15-	No record	
0	19	61	40	18	198	336
1	20	44	24	6	119	213
2	19	37	17	5	78	156
3	8	33	7	1	55	104
4	13	16	5	6	20	60
5	3	6	3	2	17	31
6	4	5	2	1	14	26
7	0	5	4	1	8	18
8	1	2	1	0	4	8
9	0	1	0	0	1	2
10	0	0	0	0	4	4
12	1	0	0	0	0	1
13	1	0	0	0	0	1
Total days.....	89	210	103	40	518	960
Hemorrhages	206	401	162	66	826	1661
Average	2.3	1.9	1.6	1.7	1.6	1.7

The results of these analyses of the temperature, humidity and wind velocity, therefore, appear to indicate that for each of these aspects of the weather there are optimum conditions under which the least number of hemorrhages may be expected to occur, but that marked variations from this optimum in any one of them, particularly in the direction of excessive heat or humidity, or absence of wind, are apt to be associated with an increase in the incidence of hemoptyses. It is important to note that we have been unable here to show any uniform relationship between these conditions themselves, except for the relatively greater frequency of hot, dry weather associated with strong winds.

BAROMETRIC PRESSURE

The relationship of barometric pressure to the incidence of pulmonary hemorrhage is of particular interest. It should be noted here that the popular impression that low barometric pressure heralds a rise in temperature, humidity and wind, and impending rain, is not true for conditions around Olive View; in fact, no constant or even predominant relationship between these weather components has been made out. Barometric pressure readings were usually made during the noon hour or in the early afternoon. The readings varied from 28.35 to 28.93 inches of mercury (735 to 720 millimeters), with an average of 28.65 inches (728 millimeters). Tabulation of the number of hemorrhages occurring on days of different barometric pressure reveals a striking relationship, more marked than any of the previous meteorological factors considered. Almost uniformly, the days with higher barometric pressure showed the greater number of hemorrhages, so that the days with the lowest barometric pressure had scarcely half as many hemorrhages as those on which the barometer rose the highest. Careful analysis of the data by statistical methods gave a positive coefficient of correlation of .11.

TABLE 12.—Barometric Pressure and Hemorrhage (Same Day)

Hemorrhages per day	Barometric Pressure Over 28 Inches						Total
	-49	50-59	60-69	70-79	80-	No Record	
0	15	36	156	88	16	25	336
1	8	19	96	58	12	20	213
2	3	18	64	50	11	10	156
3	3	6	53	27	2	13	104
4	0	7	26	18	6	3	60
5	0	1	16	8	0	6	31
6	1	1	13	6	1	4	26
7	0	1	8	7	0	2	18
8	0	0	3	3	0	2	8
9	0	0	0	1	1	0	2
10	0	0	2	1	1	0	4
12	0	0	1	0	0	0	1
13	0	0	1	0	0	0	1
Total days..	30	89	439	267	50	85	960
Hemor-rhages	29	119	770	479	89	175	1661
Average.....	1.0	1.4	1.8	1.8	1.8	2.1	1.7

TABLE 13.—Barometric Pressure Preceding Day and Hemorrhages

Hemorrhages per day	Barometric Pressure Over 28 Inches						Total
	-49	50-59	60-69	70-79	80-	No Record	
0	10	40	151	85	7	43	336
1	15	15	106	59	13	5	213
2	3	13	72	49	11	8	156
3	1	10	43	35	8	7	104
4	1	7	26	20	3	3	60
5	0	2	17	6	2	4	31
6	1	3	11	8	2	1	26
7	0	0	9	5	2	2	18
8	0	1	3	4	0	0	8
9	0	0	1	0	0	1	2
10	0	0	2	2	0	0	4
12	0	0	0	1	0	0	1
13	0	0	0	1	0	0	1
Total days..	31	91	441	275	48	74	960
Hemor-rhages	34	135	750	532	107	103	1661
Average	1.1	1.5	1.7	1.9	2.2	1.4	1.7

TABLE 14.—Changes in Barometric Pressure and Hemorrhages

Hemorrhages per day	Change in Barometric Pressure								No Rec- ord	Total
	Rise				Fall					
	15 to 14	10 to 9	5 to 4	4 to -4	-5 to -9	-10 to -14	-15 to			
0	14	12	42	151	38	17	10	52	336	
1	11	9	20	109	25	7	3	29	213	
2	2	7	23	68	26	7	7	16	156	
3	1	2	8	51	12	6	5	19	104	
4	4	4	12	20	7	5	2	6	60	
5	1	1	5	12	2	1	0	9	31	
6	1	2	4	6	9	1	1	2	26	
7	0	1	1	8	3	1	0	4	18	
8	0	0	2	5	0	0	0	1	8	
9	1	0	0	0	0	0	0	1	2	
10	1	0	0	3	0	0	0	0	4	
12	0	0	0	0	1	0	0	0	1	
13	0	0	0	0	0	1	0	0	1	
Total days	36	38	117	433	123	46	28	139	960	
Hemorrhages.....	64	69	210	700	238	90	46	244	1661	
Average	1.8	1.8	1.8	1.6	1.8	2.0	1.6	1.8	1.7	

CLINICAL DATA

The 1661 frank hemorrhages of one ounce or more, together with the 1455 other instances of blood-spitting reported, came from 333 patients of whom 183 were men and 150 were women. This male preponderance, which is the more significant since the sanatorium accommodates 20 per cent more women than men, is in accord with previous observers. More than 90 per cent of these patients were diagnosed "Far advanced pulmonary tuberculosis" at the time of admission, only two per cent entering in an incipient stage. Nevertheless the mortality rate in this group was exceptionally high; more than 34 per cent of them are already dead, and the 40 per cent who are still in the sanatorium are generally in a poor condition. It is worthy of note that not only are there more men who have hemorrhages, but that the mortality among the men in this series was

TABLE 15.—Results in Hemorrhage Cases

	Males	Females	Total
Died during hemorrhage.....	10	2	12
Died within a week.....	12	6	18
Died later in sanatorium.....	47	26	73
Died after discharge.....	8	3	11
Discharged and living.....	40	48	88
Remaining in sanatorium.....	66	65	131
Total	183	150	333

almost twice as high as that of the women. It has been stated that the Mexicans are a less tuberculous people and are less susceptible to the forms of tuberculosis which produce hemorrhage, but nearly a third of the patients in this series were Mexican. The men were, on the average, somewhat older than the women, but in both sexes all ages were represented, with the exception of children under twelve.

TABLE 16.—Age Distribution of Hemorrhage Cases

	Males	Females	Total
Under 20	25	28	53
20-29	66	65	131
30-39	43	43	86
40-49	32	8	40
50-	17	5	22
Total	183	150	333

TABLE 17.—Clinical Classification of Hemorrhage Cases

Stage on Admission.	
Minimal	7
Moderately advanced	20
Far advanced	306
Total	333
Condition on Discharge.	
Arrested	14
Improved	41
Unimproved	42
Dead	103
Remaining in sanatorium	133

LABORATORY DATA

Laboratory examinations were positive for acid-fast bacilli in the sputum in 90 per cent of the cases examined, at some time during their sanatorium stay, emphasizing the extent of the pulmonary pathology in this group. The Wassermann or Kahn test was either positive or doubtful in over 12 per cent, as compared to only 4 per cent in all patients at present in the institution, suggesting that lues may be a contributory factor in some instances, either to the advancing pulmonary pathology or perhaps to the final vascular lesion.

The white blood count in the hemorrhage cases averaged 12,000, which is about the same as that of the other far advanced patients now at this sanatorium. This may suggest that secondary infections by the pyogenic organisms is probably not an important factor in the production of these hemorrhages. The hemoglobin in these patients averaged well over 75 per cent, which is definitely higher than the corresponding figure for the other patients in this sanatorium. A decrease in hemoglobin during their stay in the sanatorium, however, was more frequent in this group than in the other patients treated here. We may conclude, therefore, that anemia is not a contributory cause of pulmonary hemorrhage, in fact, that plethora or a high concentration of the blood may be a more culpable factor, but that hemorrhage does tend, to a slight extent at least, to produce anemia.

The sedimentation time, as measured by a modified Linzenmeier technique, was below nor-

mal in nearly every instance and was less than thirty minutes in more than half of the cases, but was not as low at the time of admission as that of the far advanced patients who later had no hemorrhage. In nearly half of them, however, it dropped to a shorter time during their hospital stay, as compared to the other patients in the sanatorium, two-thirds of whom show a rise. This again suggests that the patients who had hemorrhages have a poor prognosis as a result, since a drop in the sedimentation time is of definitely poor prognostic significance.

TABLE 18.—Laboratory Findings on Admission of Hemorrhage Cases

Sputum.	
Acid fast bacilli found	298
Acid fast bacilli not found	35
Wassermann Test.	
Positive or doubtful	41
Negative	292
White Blood Cell Count.	
Under 10,000 per cubic centimeter	88
10,000-14,000	165
Over 15,000	80
Hemoglobin, per cent (Dare).	
Over 80 per cent	126
70-79 per cent	146
Under 70 per cent	61
Sedimentation Time (Linzenmeier).	
Under 15 minutes	54
15-29	127
30-59	95
Over 1 hour	42
No record	15

The blood pressure, measured at the time of admission, was below normal in most of these patients but somewhat higher than the figures obtained from other far advanced cases now in the sanatorium. On the other hand, nearly 10 per cent of them had a systolic pressure above 130 millimeters of mercury, which is more than twice the incidence of this finding in our admissions in general, and in a number of instances a marked hypertension was present. This association of high blood pressure with pulmonary hemorrhage may well possess pathogenic significance. To this extent the hypotension accompanying far advanced pulmonary tuberculosis may be looked upon as a homeostatic or protective mechanism. The coagulation time of the blood appears to be, if anything, more rapid than normal in our tuberculous patients, and examinations of patients with hemoptysis has thus far failed to reveal a single instance of undue prolongation of the clotting time.

TABLE 19.—Blood Pressure in Hemorrhage Cases

	Males	Females	Total
Under 100 millimeters	18	20	38
100-110	41	33	74
110-120	38	28	66
120-130	19	10	29
130-	20	10	30
No record	47	49	96
Total	183	150	333

MENSTRUAL FACTORS

The relationship of pulmonary hemorrhage to menstruation has been noted by a number of

TABLE 20.—Menstruation and Hemorrhages

Data available for 36 patients	
Before menses	11
During flow	13
Following week	1
Intervening 2 weeks	4
Menses absent	7

writers. The fact that hemorrhages are, on the whole, less frequent and less serious in women than in men suggests that the menstrual phenomena may be, not a cause of hemorrhage, but rather a protection against it. This might act either by lessening the total volume of blood, thus relieving a plethora that might otherwise lead to hemoptysis by lowering the blood pressure or the basal metabolic rate, with lessening of the respiratory movements, or by increased coagulability of the blood, such as results from any loss of blood. The position that the hemorrhages that do occur occupy with respect to the menstrual cycle is not often stated, quantitatively, although individual opinions have been confidently expressed. For this reason the women now in the sanatorium were interviewed by a woman physician and any recollections they had as to the relationship of their hemorrhages to the time of menstruation was carefully recorded.

Examination of these reports showed a very definite relationship. In only one case did hemorrhage follow the menstrual flow, and in only four did it occur during the intervening fortnight. More than 85 per cent of the women reported that hemorrhage came either during a period of amenorrhea, or preceding or accompanying the first few days of menstruation. In several instances the observation was made that hemorrhage was apt to come at the time of suppression of menses, the so-called vicarious menstruation. Whether the hemorrhages so occurring depend on changes in the coagulability of the blood, on the engorgement of the mucous membranes of the lungs similar to the observed engorgement of the nasal mucosa, or on some specific expression of the female sex hormone is not known. The studies on the physiological monthly cycle in women, showing that the blood pressure reaches its maximum just before the menstrual flow, dropping to a minimum soon after the flow ceases and gradually rising to the maximum again, however, brings this phenomenon also in consonance with the fact that all of the other conditions resulting in increased blood pressure seem to be accompanied by pulmonary hemorrhage, while those lowering the blood pressure appear to afford some protection against it.

USUAL TREATMENTS

The therapeutic management of a case of pulmonary hemorrhage and the prevention of its recurrence depends upon our understanding of the pathological processes involved and the factors influencing them. The widespread idea that there is a delay in the clotting time has given rise to the prevailing treatment of pulmonary hemorrhage by calcium, fibrinogen, and other means of accelerating coagulation. The administration of emetin, ergot, adrenalin, and other vasoconstrictors have also been recommended in the apparent hope of producing a vasoconstriction that will hasten the clotting process in the lungs, or lessen the relaxation of the vessels in the lung which may allow such transudation of blood as has been

suggested by Otis. No support for any of these measures has been found in this study.

RATIONAL TREATMENT

More rational appears to be the use of vasodilators and depressants. Even though the blood pressure in these patients may not be as high as normal, relative lowering of the pressure may make for more easy clotting and retention of the clot. That transient increases in the blood pressure may play an etiological rôle in the causation of pulmonary hemorrhage is suggested by many facts. Hemorrhages following sudden or unusual exertion may be reported by any physician with experience with tuberculosis. The rôle of emotion, excitement and anxiety, all of which increase the blood pressure, have been noted many times. More tangible, perhaps, is the data showing that in the morning, when patients arise and the blood pressure rises from the low sleeping level to the higher waking one, the incidence of hemorrhages multiplies several times. The lowering of this incidence during the afternoon rest period, and its increase thereafter, also fits in with this explanation. It is highly probable that the effect of meteorological conditions on the frequency of hemoptysis may be found to act through this mechanism. All experimental evidence indicates that diminished barometric pressure lowers the blood pressure, and vice versa. It is possible that the diurnal barometric maxima have also their relationship to the daily fluctuations in the blood pressure. The greater incidence and severity of pulmonary hemorrhage in men, as compared to women, may be explained by the lower blood pressure in the latter group. The frequency with which hemorrhages when they do occur in women come just before or at the beginning of the menstrual period, when the blood pressure is highest, or during suppression of the menses, when it may also be expected to be unduly increased, may be attributed to the same agency.

PULMONARY APOPLEXY

A comparison may be made between pulmonary hemorrhage, or hemoptysis, and cerebral hemorrhage, or apoplexy. Both result from pathological conditions in the region of the vessels affected, such as arteriosclerosis in the cerebral vessels or tuberculosis in the lungs. In addition, both are precipitated by sudden and abrupt increases in the blood pressure, as from excitement, exertion, etc. The analogy is not yet complete, but the possibility should be borne in mind and may well repay further study.

It has not been possible at this time to take up all of the interesting angles to the clinical study of pulmonary hemorrhage. It is hoped, however, that the many relationships here shown or suggested may be further investigated so that we may better understand, and thus more successfully forfend, this intimidating visitation.

APPENDIX—COMMENT

Death Data.—At the same time that the study of hemoptyses was being conducted, data was

accumulated regarding the 929 deaths which have occurred here since the opening of the sanatorium of which 555 have taken place within the past three years. The hourly curve of death shows that, contrary to the popular impression, the majority of deaths from tuberculosis occur during the waking hours, the largest numbers occurring in the morning after arising, and in the afternoon after the rest period. The differences are not nearly so marked as in the case of the hemorrhages, however, and do not point so directly at some causative factor. Only twelve deaths have resulted immediately from a hemorrhage, and eighteen more within a week thereafter, during the past three years, and less than one-fourth of the patients dying here had hemorrhages while they were in the sanatorium.

The weekly fluctuation in the death rate from day to day is inconsequential, the apparently slightly lower figure for Wednesday having no clear significance. The seasonal variation in the death rate is surprisingly low, the average of fifteen deaths a month having been maintained for several years with only slight occasional variations. This is especially unexpected in view of the marked seasonal variation in the death rate from other respiratory infections.

Barometric Analysis.—It was suggested, however, that the barometric pressure effect might not be manifested at once, however, but only after a number of hours, and that, in any case, the hemorrhages occurring at the time of the peak, in the morning, were more likely to be influenced by the barometric pressure reading taken the day before than by one which was not taken until many hours later. The number of hemorrhages per day, therefore, were recalculated with reference to the barometric pressure existing on the previous day, and the data again analyzed. The value of this manipulation was at once evident.

The days when the barometric pressure rose to 28.8 inches or higher were followed by an average of 2.2 hemorrhages per day, while the days when it dropped to below 28.5 inches were followed by an average of only 1.1 hemorrhages per day. The intermediate figures show corresponding relationships. In other words, whenever the barometer is low we may expect few hemorrhages; whenever it is high, more on the succeeding day, and intermediate conditions yield intermediate numbers of hemorrhages. If we try to continue this process further still, however, and correlate the number of hemorrhages with the barometric pressure on the second preceding day, this relationship is lost and no connection between barometric pressure and hemorrhages appears.

Many previous workers have considered that the change and the direction in change of the barometric pressure, rather than the absolute values of the pressure existing, are of significance in the incidence of pulmonary hemorrhage, as has been stated by Browning and Pottenger. Our data lends but little support to this conception.

The days with little or no change in the barometric pressure do seem to have somewhat fewer hemorrhages than those with more change in the barometer, but the difference is slight and there appears to be no significance at all as to whether the barometer is rising or sinking.

This unexpected phenomenon, that the incidence of pulmonary hemorrhage goes hand in hand with the height of the barometric pressure is the most definite and unambiguous finding in this investigation. It is unfortunate that the data from previous studies so far encountered has not been so presented as to make direct comparison possible. It is hoped that further attempts will be made to see if this apparent relationship holds in other places and at other times.

Olive View Sanatorium.

SAFETY MEASURES IN THE PRACTICE OF UROLOGY*

By CHARLES PIERRE MATHÉ, M. D.
San Francisco

IN recent years urology has made great strides and is considered today as the specialty in which diagnosis has reached a greater state of perfection than in any other branch of medicine. The development and perfection of the diagnostic and operative cystoscope has provided a method of precise examination and accurate treatment of diseases of the kidney, ureters, and bladder. The mortality attending all surgical interventions on the urinary tract has been greatly reduced. These advances have been due to complete supervision and treatment of urinary disorders by the highly trained specialist of the day—the urologist—who is able to diagnose any lesion of the urinary tract, to perform any operation on the urinary organs that is necessary, and to cope with any complication that might arise. In spite of the great perfection that our specialty enjoys, certain established procedures are continued which are harmful, sometimes even fatal to the patient, which seemingly are continued, not because of lack of safer methods or of condemnation voiced by individual urologists who have had embarrassing or fatal accidents, but by virtue of time-honored custom. It is the purpose of this address to review and condemn these dangerous procedures, substituting harmless and efficacious methods in their place.

LOCAL ANESTHESIA

In producing surface anesthesia of the urethra and bladder prior to instrumentation and cystoscopic investigation, cocaine is still used. There is no doubt that it produces excellent analgesia, but it is dangerous, particularly in the aged, and when there are open bleeding or ulcerative surfaces in the urethra and bladder. Should it come in contact with an open surface, rapid absorption takes place, leading to grave symptoms and sometimes

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* Chairman's address, Urology Section, at the fifty-ninth annual session of the California Medical Association at Del Monte, April 28 to May 1, 1930.

death. Topical application of cocain (4 to 10 per cent) is equally dangerous, particularly when applied after instrumentation. Novocain (2 to 4 per cent), eucain, tutocain (1 per cent), procain or some other nontoxic analgesic substance should be substituted for cocain. These drugs may require a longer time to take effect, but if one waits ten to twenty minutes satisfactory anesthesia is obtained. I cannot too strongly condemn the injection or topical application of cocain in any strength in the urethra and bladder for the purpose of obtaining surface anesthesia.

PASSAGE OF SOUNDS

I cannot overemphasize gentleness in the passage of sounds. In patients presenting multiple strictures with the formation of pockets in the urethra, one should always use a filiform which attaches to the Béniqué or La Fort sound and guides it safely into the bladder. It prevents the tip of the sound from entering into a pocket, abrading the mucosa, or forcing a false passage. In visiting the famous Clinique de Necker in Paris, one is impressed by the ease with which sounds are passed by the aid of the filiform, which screws onto the Béniqué double-curved sound. The use of quinin often prevents the urethral chill and fever that sometimes follows dilatation of the tight stricture. I recall a patient, the consul of one of the world powers, in San Francisco in whom the previous administration of one gram of quinin in divided doses invariably prevented subsequent attack of chill and fever. Although its use is empirical, it is efficacious in practice.

DANGERS ATTENDING CYSTOSCOPY AND PYELOGRAPHY

The great value of cystoscopy and pyelography has led to its universal employment by urologists. Its aid in diagnosis is unquestioned and the information obtained by its intelligent employment is of great benefit. Although an invaluable aid to diagnosis, cystoscopy is not without danger, and is sometimes followed by a rather severe reaction. It cannot be indiscriminately employed in all cases. Cystoscopy is particularly contraindicated in weak, debilitated patients, in the aged, and in those whose total renal function is low. Pyelography is also contraindicated in the type of cases mentioned above. In infection of the kidney it should not be employed during the acute stage. Although bilateral pyelography is well tolerated in the great majority of patients, its indiscriminate use is not without danger. Anuria followed by death has been observed to occur after bilateral injection of the kidney pelvis with the nontoxic opaque solutions now in vogue. Urologists experiencing accidents are very emphatic in condemning the injection of both pelves at the same sitting. There is no question that some of these reactions might have occurred following the simple passage of the ureteral catheter. On three occasions I have observed a severe reaction following the passage of the ureteral catheter, con-

sisting of tetanic contractions of the muscles of the hands and feet, marked weakness, heart failure, and syncope. These reactions occurred in a patient suffering from a huge renal tumor with metastasis in the chest, in one presenting rather marked advanced bilateral hydronephrosis, and in one possessing a huge unilateral hydronephrosis. When this reaction occurs the catheters should be removed at once; the cystoscopic examination discontinued. In weak and debilitated patients and in those presenting considerable infection it is much safer to perform unilateral pyelography, examining each kidney at a different sitting.

CHOICE OF CATHETERS IN CATHETERIZATION OF THE BLADDER AND URETERS

In any modern hospital the greater proportion of catheterization of the female patient is performed by the student nurse. As we all know, the ordinary glass catheter is used. It is easily sterilized by boiling, can be repeatedly utilized and, because of its shape, is readily retained in place while evacuation and lavage of the bladder is made. Yet, it is not without danger. Recently at Saint Mary's Hospital in San Francisco, a patient was catheterized prior to an abdominal operation. The catheter had been previously cracked by striking metal instruments in the sterilizer. The crack was so minute that it was not observed by the nurse. When it was placed into the bladder the tip broke and lodged in this viscus and, although it was removed by the use of a Rongeur forceps through an operating cystoscope, the accident was the source of great consternation to the physician and hospital. After conferring with the hospital authorities, we substituted a specially devised metal for the glass catheter. It has the same shape and contains openings of greater size, assuring better drainage of particles of débris and mucus when evacuating or washing the bladder. This metal catheter is more durable and serviceable and cannot be broken. I recommend it to all hospitals for replacement of the glass catheter.

In catheterizing the ureters the silk and gum ureteral catheter has occasionally broken and has been retained in the ureter, giving rise to more or less grave complications. At the last meeting of this section at Coronado, Dr. William Stevens reported breaking the tip of a bulb catheter in the ureter while making routine dilatation. In discussing Doctor Stevens' paper, Doctor Birch of Sacramento reported a similar accident. One must not forget that the ureteral catheter is constructed of silk and gum. When the catheter becomes old slight forcing will cause the gum to crack, allowing urine and antiseptic solutions to come in contact with its interior, disintegrating the silk threads. Such a catheter can easily be broken, particularly if it is caught in a tight ureter or if it forms a loop within an enlarged ureter. The accident of breaking a catheter within the ureter can be avoided if catheters are inspected

and discarded when they are defective or have disintegrated with age. Furthermore, thorough lubrication with olive oil facilitates the introduction and withdrawal of the catheter.

DANGERS OF SODIUM HYDROXID IN THE CYSTOSCOPIC ROOM

In order to alkalinize the urine collected from the separate kidneys in performing the phenol-sulphone-phthalein renal function test, sodium hydroxid 15 per cent was originally recommended by Gerathy and Roundtree and since has been more or less universally employed. It is a very strong caustic agent, and usually destroys that portion of the ureteral catheter that is allowed to come in contact with it. If by chance it should be injected into the kidneys or bladder, as it has been on some occasions, it causes a severe caustic reaction, sloughing the tissues and leads to grave complications and death. The simple substitution of innocuous 10 per cent sodium bicarbonate solution entirely does away with this danger. It is just as efficacious in rendering the urine alkaline and is absolutely harmless should it be injected into the kidney or bladder. There is no excuse for the urological department of any modern hospital which continues the use of sodium hydroxid as an alkalinizing agent.

AIR INFLATION OF THE URETHRA AND BLADDER FOR DIAGNOSTIC AND THERAPEUTIC MEASURES

Since 1903 air embolus has been recognized as the cause of alarming symptoms or death following the distension of the bladder with air, yet its dangers have been often underestimated, if not entirely overlooked. Recently I collected thirty-three such cases from the literature, and from questionnaires addressed to the leading urologists of America and Europe. Despite the dangers attending air distension, 10 per cent of genito-urinary surgeons still employ it. The chief reason for still employing air is that the aqueous solution that is used for vesical distension runs over the wound and when the urine is infected contaminates the same. This objection is overcome by employing suction through the stab incision of the bladder. Although the injection of air in the normal urethra and bladder is usually harmless, rupture of the bladder by overdistension or the presence of a preëxisting pathological lesion such as marked inflammation, ulcer formation, or a new growth, weaken the bladder wall and favor entrance of air into the venous circulation, giving rise to grave complications. Air in the bladder and urethra should be used with the greatest caution. One should abandon inflation of the urethra and bladder with air for diagnostic, therapeutic and operative procedures and substitute harmless, mild antiseptic solutions.

VALUE OF PROPHYLAXIS IN THE PREVENTION OF HEMORRHAGE

Although energetic measures are taken to combat hemorrhage when it occurs following an operative procedure on the prostate or kidney or after electrocoagulation of a bladder lesion, few, if any,

prophylactic measures are taken to prevent its occurrence. The bleeding and coagulation time should be determined on all patients. When delayed, one should not operate until he is assured that it has been rendered normal by employment of the modern prophylactic measures at our command. These consist of the administration of calcium orally or intravenously, the giving of jello for at least a week prior to the operative interference, injection of coagulating substances such as horse serum, tissue extracts and fibrinogen, and the transfusion of blood. Unfortunately in some true bleeders neither the coagulation nor bleeding time is delayed. In 1926, in a true bleeder I experienced troublesome hemorrhages, following tunneling an obstructing median lobe of the prostate by electrocoagulation. Since that time I have prepared all patients that are to undergo any operative interference or electrocoagulation against hemorrhage. They are given one gram of calcium lactate every four hours and are instructed to take a portion of fruit jello twice a day for a week prior to operation or fulguration. Since its routine employment we have had fewer postoperative hemorrhages. When a hemorrhage did occur the blood clotted well and was more readily controlled. I offer the routine administration of calcium and jello as a prophylactic measure against hemorrhage.

SUMMARY

In keeping with the great advances that urology has made in recent years, certain time-honored procedures which have proved to be harmful and dangerous to the patient should be universally abandoned.

Novocain or other nontoxic solutions should be substituted for cocain for the purpose of producing surface anesthesia prior to the instrumentation or cystoscopy, whether for injection or topical application in the urethra and bladder.

The substitution of a metal catheter for the ordinary female glass catheter now in vogue does away with danger of its breaking in the bladder.

Cystoscopy and pyelography, although a valuable aid in diagnosis, is not without danger and is particularly contraindicated in weak, debilitated patients, in the aged, and in those presenting marked infection or lowered function of the kidneys.

Copious lubrication and care in selecting good ureteral catheters which have not been disintegrated by age or exposure to heat or to antiseptic solutions will eliminate the danger of breaking and leaving a piece in the ureter.

Because of the great possibility of air embolus, the distension of the urethra and bladder with air for diagnostic, therapeutic and operative procedures should be abandoned and harmless, mild antiseptic solutions substituted.

One should not overlook the great value of the prophylactic administration of coagulating substances prior to operative intervention on the genito-urinary organs or to electrocoagulation of lesions of the bladder and urethra.

Sodium bicarbonate should be substituted for sodium hydroxid which might be accidentally injected into the kidneys or bladder, leading to grave complications, probably death.

The individual urologist who has had embarrassing or fatal accidents is emphatic in denouncing these dangerous and unnecessary procedures. It behooves all urologists to profit by these unfortunate experiences and to undertake the use of harmless, safer methods emphasized in this address.

450 Sutter Street.

ACUTE INTESTINAL OBSTRUCTION—ITS DIAGNOSIS BY THE FLAT X-RAY FILM*

By MARCUS H. RABWIN, M. D.

AND

RAY A. CARTER, M. D.

Los Angeles

DISCUSSION by *Kenneth S. Davis, M.D., Los Angeles;*
Robert S. Stone, M.D., San Francisco.

ACUTE intestinal obstruction is one of the most common emergencies encountered at the Los Angeles County General Hospital. Seeing the condition so frequently, we have been surprised at the appalling mortality. In analyzing our records we found that year after year the number of cases had increased tremendously as the county and the institution had grown, and yet year after year approximately half of the patients died. We were also impressed with the fact that cases recognized and treated within a few hours of the onset of symptoms made a short, easy recovery following a relatively simple operation, while the lapse of a few more hours resulted in a desperate situation with a fatal outcome. Obviously the problem resolves itself into one of making earlier diagnoses.

THE FLAT PLATE IN ACUTE INTESTINAL OBSTRUCTION

The use of the flat plate in the diagnosis of acute intestinal obstruction was first introduced by Case¹ in 1911. Since that time he has repeatedly emphasized its value and others² have reported success with its use. Recent observations by Davis³ stimulated our interest, and, having a large volume of material, we were able to test its merit in a fairly long series of cases.

The technic is very simple. The patient is given a 1-2-3 or milk and molasses enema in order to clear the bowel of gas below the obstruction, if one exists. He is then taken to the x-ray laboratory, where an exposure of the abdomen is made on a Bucky diaphragm, using the same technic employed in making a kidney film. The patient is then returned to his bed, having been given no contrast media either by mouth or by

bowel; and having suffered very little disturbance. The film is put through the solutions at once and can be read by the roentgenologist and surgeon in a few minutes. The whole procedure can be accomplished while preparations are being made for surgical intervention should an immediate operation seem necessary.

INTERPRETATION OF X-RAY PLATES

The radiographic evidence of obstruction is based upon gas-filled distended intestines, the distinction between colonic and small bowel obstruction depending upon the identification of distended gut as colon or small bowel. Normally there may be very little or a great deal of gas in the colon and a small amount scattered in the small intestines. The thing we look for to indicate obstruction, however, is distention. Gas under pressure is abnormal. While it does not always indicate a mechanical obstruction, its presence demands an explanation, and it is in the analysis of these abnormal shadows, considered in connection with the clinical picture, that the diagnostic value of the method rests. The illustrations submitted with this paper bring out some of the distinctions noted in interpretation of x-ray plates of acute intestinal obstruction.

The typical case of small intestinal obstruction presents a section of gut varying from a few inches in length to several coils, sharply outlined on the film by its air content. The degree of enlargement varies greatly, up to an enormous diameter of three or four inches, but is usually at least the calibre of the normal colon.

In the earlier stages we see one or a few gas-filled coils. The distention is moderate. The folds of Kerkring produce a feathery marking and serrated borders, the "herring-bone" appearance described by Case. As the condition progresses, the dilatation increases, more coils are seen and the appearance evolves into the typical "step-ladder type." In the well-developed case the outline shows a tautness of the intestinal wall, a partial or complete ironing out of the markings of the valvulae conniventes, and a straightening of coils with sharp buckling at the turns. When these signs are present, the colon is usually clear of gas due to repeated enemas, and we have a picture radiographically consistent with acute small bowel obstruction.

The appearance of a large bowel obstruction is entirely different. The commonest site is in the sigmoid due to carcinoma. The dilated section of colon in these cases is usually tremendously distended. The lateral position and the more or less fixed course of the large bowel together with its characteristic haustral markings serve to identify from small gut. The gas shadow begins at the cecum and progresses as a solid column under pressure and stops abruptly at the point of obstruction. The haustrations are quite persistent, but the partitions are much further apart than normal. When the condition has been of long standing we sometimes see a

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* Read before the General Surgery Section of the California Medical Association at the fifty-eighth annual session at Coronado, May 6-9, 1929.

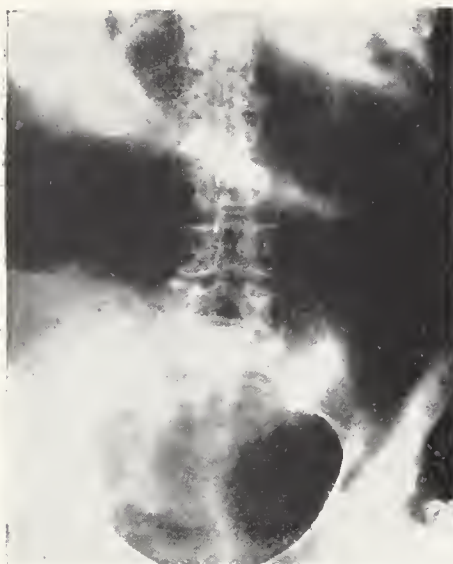


Fig. 1.—Illustrating obstruction in the lower sigmoid; large bowel greatly distended. Gas shadow stops abruptly at point of obstruction. No small bowel shadows visible.



Fig. 2.—Acute obstruction in the small intestine. No colonic shadows present.



Fig. 3.—Small bowel obstruction. Isolated loop tremendously dilated, but identified as small bowel by characteristic transverse markings.

characteristic distention of small bowel due to the pressure extending back through the ileocecal valve.

ACCESSORY METHODS OF EXAMINATION

There are several accessory methods of examination occasionally useful and recommended by various authorities. Among these are films taken in the lateral position to indicate fluid levels, barium enemas to locate colonic obstruction or to differentiate colonic gas, and small amounts of barium by mouth followed by interval observations.

To spare the patient, these accessory methods have not been employed with the exception of the barium enemas, which are very useful in confirming the diagnosis of obstruction in the colon.

DIFFERENTIAL DIAGNOSIS FROM X-RAY PLATES

A differential diagnosis from the x-ray plate presents, at times, many difficulties. Some of these we have been able to work out after critically reviewing our errors. Others we are still unable to solve. In the case of obstruction in the large bowel the story is usually obvious, the colon assuming giant proportions with the gas column ending sharply. We have seen acute pancreatitis exhibit a marked distention of the transverse colon simulating obstruction at the splenic flexure. This has been observed also by Hulten,⁴ who mentions it as a diagnostic point. We have not found this phenomenon constant in pancreatitis, but it does occur in some cases. The gas column in the colon, when present in this condition, tapers off and does not iron out the bowel wall as is usually seen in obstruction.

THE PROBLEM OF PARALYTIC ILEUS

The major problem in differential diagnosis concerns itself with the recognition of paralytic ileus. Paralytic ileus ordinarily is not surgical. When it occurs as an immediate postoperative complication, or occurs in the presence of injury to the chest, spine or pelvis, or is associated with

ureteral colic, pyelocystitis, acute salpingitis, septic abortion, or systemic toxemias not related in any way to intra-abdominal disease, exploratory laparotomy is not only contraindicated, but is highly undesirable because it adds an additional tax upon the reserve of an individual whose life is already in the balance. When it occurs associated with the generalized peritonitis following a perforated appendix, appendiceal or pelvic abscess, ruptured peptic ulcer, gangrenous cholecystitis or acute hemorrhagic pancreatitis, we are dealing with a surgical abdomen, but an accurate diagnosis is very important in order to make a safe, effective therapeutic attack. A flat plate of the abdomen in many of these cases of paralytic ileus will simulate that of an acute obstruction in the small bowel. In a preliminary report, one of us stated that we were unable, up to that time, to differentiate the two conditions radiographically. With added experience, however, we have been able to work out a few points which enable us to read the films more accurately, although we are still confronted with many cases in which the distinction is not radiographically clear.

In a typical case of ileus we see numerous coils of only slightly or moderately distended small bowel, associated with gas in the large intestine. The abdomen in ileus may be tightly filled with innumerable gas-filled coils, none of which exhibit the signs of great internal pressure. In some cases, however, the dilatation of the small intestine is extreme and the colonic gas small in amount. The case is then not radiographically distinguishable from mechanical obstruction. Such pictures are apt to occur in cases of localized abdominal abscesses, such as arise following a ruptured appendix or pelvic inflammation.

In every instance, the clinical manifestations must be kept well in mind while interpreting the flat plate. In many cases the history labels the case at once. Fever and leukocytosis early in the attack speak against obstruction. Marked



Fig. 4.—Acute obstruction showing two well-defined, distended loops of small bowel.



Fig. 5.—Case of paralytic ileus due to a generalized peritonitis following ruptured appendix. Note distention of small intestine. Differential diagnosis in this type of case must be made on the basis of clinical findings.

tenderness, rigidity and a peritoneal release sign are more in keeping with peritonitis. The abdomen is usually silent in ileus and is usually rhythmically boisterous in mechanical obstruction. Sometimes a second film taken after a lapse of a few hours will clarify the situation by showing whether or not gas persists in coming down into the colon after repeated enemas. This method has proved very helpful in cases of acute pelvic peritonitis, where the character of the pain and vomiting simulated obstruction very closely. Perhaps there is an element of mechanical obstruction in these cases due to kinking of the bowel through inflammatory adhesions in the pelvis. Those cases do better when left alone, however—the obstruction symptoms clear as the peritonitis resolves. By making two films at intervals of a few hours, we have been able to establish the diagnosis. Obstruction is not complete and the colon persistently demonstrates gas.

We have had a very small group of cases, five in a series of about two hundred plates, in which obstruction was present, but could not be demonstrated in the film. In one of these the film was everywhere peculiarly devoid of gas shadows. The bowel at operation was found to be distended with fluid. Clinical history and symptoms were sufficiently suggestive to warrant exploration. The other four were not absolutely negative but were placed in an indeterminate group.

The clinical value of the method has been sufficiently gratifying in our hands to justify a policy of routine flat plate in all cases in which acute intestinal obstruction is a diagnostic possibility. Many cases have been taken to surgery hours before the clinical picture demanded immediate action. When positive, it provides the surgeon with added assurance that his recommendation for immediate operation is absolutely justified, despite the patient's plea for procrastination.

In cases of large bowel obstruction where the patient had been sick for many days, an accurate preoperative localization and consequently a

better-planned operative procedure has been an important factor in sparing the patient the shock entailed in blindly exploring an abdomen filled with distended bowel.

COMMENT

While it is still early to gather statistics on its value, we are nevertheless encouraged by the figures given us by the unbiased Medical Audit Department of the hospital. During the eight months in which the flat plate has been used, the mortality for acute intestinal obstruction was 23 per cent. This excludes all cases of strangulated external hernias because they present no diagnostic problem. The mortality for the three previous years for the same group of cases was 53 per cent, 37 per cent, and 40 per cent. Possibly the recent increased interest in the subject is partly responsible for the improvement in results; nevertheless we know that our cases are going to surgery earlier and fewer are dying than formerly.

SUMMARY

To summarize, a flat x-ray plate of the abdomen, without contrast media, shows a characteristic distribution of gas shadows, which in nearly all cases will not only indicate the presence of acute obstruction but will localize it in small or large bowel. Viewed in the light of clinical findings it will, in the majority of cases, lead to the recognition of bowel obstruction. The method is simple, consumes very little time, causes the patient no discomfort, and is a valuable aid in the early diagnosis of acute intestinal obstruction. It has been a definite factor in reducing the mortality at the Los Angeles County General Hospital.

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DISCUSSION

K. S. DAVIS, M. D. (St. Vincent's Hospital, Los Angeles).—Although Case in 1915 first called attention to the roentgenographic significance of gas distention of the bowel in cases of acute intestinal obstruction, the knowledge of this method has not been widely disseminated among the medical and surgical profession. This is unfortunate, as the procedure is simple and works no hardships on the patient, nor does it

cause any delay in those cases requiring immediate surgery. In the treatment of acute intestinal obstruction and especially mechanical ileus early recognition of the condition is of the greatest importance so that the marked depression of the later stages may be minimized or averted. In my experience the method described by Doctors Rabwin and Carter offers a valuable aid to the surgeon in the early diagnosis of acute obstruction.

During the past four years at St. Vincent's Hospital we have had approximately forty cases of obstruction in the gastro-intestinal tract in which ordinary 14 x 17 roentgenograms were made of the abdomen and pelvis, preferably through a Potter Bucky diaphragm. In all but seven of these the approximate site of the obstruction has been determined with a fair degree of accuracy. Of these seven so listed, two patients had an incomplete obstruction and were not critically ill so that a motor meal study could be done and the obstructive point localized. In one case with a negative "scout" film an intussusception of the terminal ileum into the cecum was found when the patient was given a barium enema.

The fourth case was that of a newborn infant with a congenital atresia of the colon. In the "scout" film it appeared as if the entire colon was enormously distended as well as the small bowel. Apparently this method is of little value in the localization of obstruction in very young babies as the small bowel can become so enormously distended that its shadow cannot be differentiated from the shadow of a distended colon.

In the fifth patient, the roentgenograph showed a perfectly normal appearing abdomen with practically no gas present. At the autopsy a mesenteric thrombosis was found with gangrene of twenty inches of the small intestine.

The other two cases incorrectly diagnosed were paralytic ileus; the small bowel being so markedly distended that a diagnosis of acute mechanical obstruction was made on the basis of x-ray findings. Ordinarily paralytic ileus can be distinguished from mechanical obstruction due to the fact that gas is found scattered throughout the gastro-intestinal tract in the former condition and usually occurs only above the site of obstruction in the latter.

I believe that the value of negative roentgenographic findings in cases of suspected obstruction should be stressed. Out of approximately one hundred cases with negative roentgenographic findings in my series only one had an acute obstruction which the x-ray failed to show. However, the absence of gas distended bowel on the roentgenogram should be disregarded by the surgeon if the clinical evidence points overwhelmingly towards obstruction.

It is certainly a pleasure to have work verified on so large a scale as has been done by Doctors Rabwin and Carter. I believe they have been very conservative in their claims as to the value of this procedure.

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ROBERT S. STONE, (M.D. (University of California Hospital, San Francisco).—Doctors Rabwin and Carter are to be congratulated for calling our attention so convincingly to the great value of the flat x-ray film in diagnosing acute intestinal obstruction. Their description of the findings and diagnostic points is so clear and accurate that little is left to be said in the way of discussion. The facts they present are so striking that this method should be made a routine in all suspected cases in all hospitals.

A little more might be said of what they call the accessory methods. When the findings in the first film are convincing nothing more need be done. When, however, some doubt still remains further methods are of value. One of these is the fluoroscopic observation of the patient in the upright position or semi-upright position. If the bowel contains a large amount of fluid, as well as gas, the gas shadows may be obscured in a film made with patient supine. When a tilting fluoroscopic table is available it is an easy

matter, causing little disturbance to the patient, to move him in the supine position on to such a table and then gradually tilt him to the upright position or half way up. In such a position the fluid can be seen easily with the gas above it. When a tilting fluoroscopic table is not available a film made with the patient on his side and the x-rays passing through horizontally may give the same results. Any loop of small intestine showing a fluid level with gas is diagnostic of obstruction of some degree. Whether that obstruction is organic or due to a paralytic ileus is still a problem. The authors' differential points between ileus and organic obstruction are real contributions.

Where a saving of time is not so important it is of value to remember that the giving of barium sulphate mixtures is not so prejudicial to the patient's well-being as is generally believed. Case has emphasized this point.

A patient, whom we had at the University of California Hospital, developed all of the clinical symptoms of acute intestinal obstruction—eleven days post-operative. A plain film and fluoroscopic observation showed distended loops of small bowel. The Surgical Department was prevailed upon to allow the administration of some barium in water through the Connell drainage tube. This passed rapidly down the small intestine to a definite point and remained there for over six hours without passing on. The surgeons had about decided to operate when at a twenty-hour examination the barium was all seen to be in the large bowel. The patient went on to an uneventful recovery. In this case the giving of barium was at least coincident with the relief of the obstruction and did not cause a plug.

In conclusion, we want to emphasize that while the accessory methods are of value, the simplicity of that advocated by Doctors Rabwin and Carter is its great feature.

LYMPHOBLASTOMA INVOLVING THE STOMACH—ROENTGENOLOGICALLY CONSIDERED*

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AND

ROBERT S. STONE, M. D.

San Francisco

DISCUSSION by Addison E. Elliott, M.D., San Diego; Henry Snure, M.D., Los Angeles.

LYMPHOBLASTOMA of the stomach is such a rare condition that no one roentgenologist is likely to see more than a very limited number of cases. So it is necessary to pool experiences. A review of the reported cases and of those here presented shows that a majority have been diagnosed as carcinoma. Surgery has very little to offer to either carcinoma or lymphoblastoma. X-ray therapy has a great deal to offer to the latter. If it should be possible to differentiate these two conditions without an exploratory operation, which has a high primary mortality in these often emaciated patients, it would be a great help.

OBJECT OF THIS STUDY

The object of this study is to see if any such differentiation is possible. No attempt will be made here to differentiate the lymphoblastomata

* From the Department of Roentgenology, University of California Medical School.

* Read before the Radiology Section of the California Medical Association at the fifty-eighth annual session at Coronado, May 6-9, 1929.

into separate groups, and no cases with peripheral involvement will be ruled out because, while in them a diagnosis is frequently possible by biopsy of a superficial gland, they may give in their gastric manifestations some indication of what is to be expected in cases without peripheral glandular enlargement.

PATHOLOGICAL CHANGES

The finer microscopical diagnosis will be left out of consideration, but as the gross picture is the cause of the changes shown by x-ray examination it will be considered. According to Ewing, the primary lesion of lymphosarcoma in mucous membranes is in many lymph nodules. From these, extension proceeds in the mucosa and submucosa, in which layers large bulky tumors may be formed without involvement of the muscular coat. Later invasion of the muscular coat and still later destruction of the muscle fibers takes place. Even when the stomach is secondarily invaded from surrounding glands, the process seems to extend to the mucosa and then to spread in the submucosal layers, only later involving the musculature generally.

The type of tumor that is formed by the invasion varies. At times there is a diffuse thickening of the wall with increasing rigidity and superficial ulceration. This thickening may be limited to one area and may or may not form a bulky tumor. When this occurs at the pyloric antrum, it usually results in an annular tumor with marked stenosis (Ewing). In other cases the invasion is much greater in several localized areas, producing projecting masses resembling polyps.

Regarding the general effect on the size of the stomach, it is reported that lymphosarcomata do not produce the shrinking of the stomach that carcinomata do, and that even when the pylorus is involved, it does not cause constriction. On the

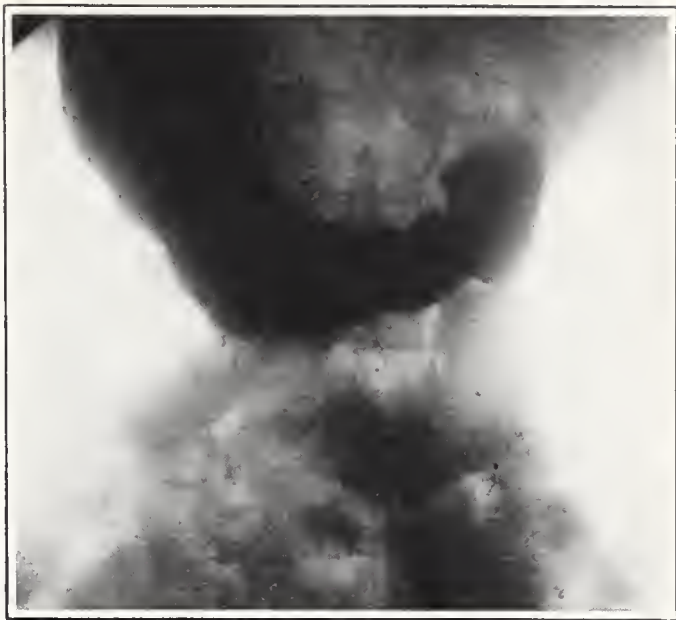


Fig. 2, Case 2.—Diffuse infiltration of the wall without definite formation

other hand, Ruffin, quoted by Ewing, emphasizes that if the pyloric ring is involved there is a marked degree of stenosis. The confusion seems to be over the type of invasion. The general infiltrations cause a decrease in size and stenosis. The polypoid growths are in large hypotonic stomachs and do not cause stenosis.

ROENTGEN RAY CHANGES

It should be possible with any given lesion to study its pathology and from it predict the x-ray findings. On this basis, lymphosarcomata of the stomach should show the following changes roentgenologically. The earliest lesions being simply mucosal invasion should not interfere with form or function and, therefore, not be demonstrable. The more extensive mucosal and submucosal invasions produce a more rigid appearing wall, or, if large enough, a filling defect. This defect will be annular, diffuse, rugose, or polypoid, according to the type of the process. In these respects, they may closely resemble carcinomata and polyposis. Junghaven has pointed out, however, the important fact that, owing to the late invasion of the muscular layers, there is a time in the development of lymphosarcomata when there is sufficient infiltration to produce filling defects or somewhat rigid walls, and yet peristalsis can be seen. This seems to be the only diagnostic sign possible from a pathological point of view. It does not, however, separate the polypoid types from benign polyposis, which differentiation must be made clinically. The advanced stages of lymphosarcoma when the muscle is involved closely simulate carcinoma, but the defects may be of an unusual type.

The new cases here presented are shown in Table 1.

ANALYSIS OF CASES STUDIED

An analysis of the cases presented shows the following pathological and roentgenological findings:



Fig. 1, Case 1.—Multiple polypoid growths

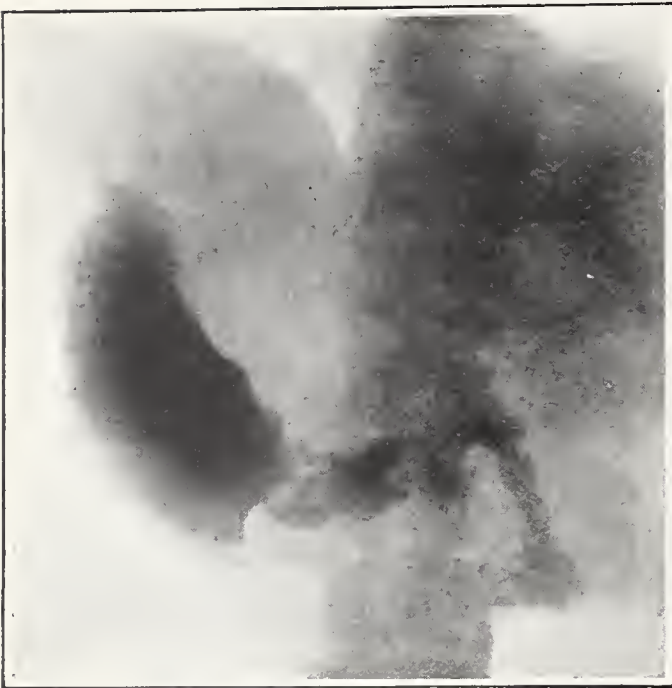


Fig. 3, Case 5.—Annular infiltration in the prepyloric region

1. *Type of Tumor*.—Multiple polypoid growths (shown by multiple irregular, rounded defects); three cases; (1, 8, and 11).

Diffuse infiltration of the wall without definite tumor formation (shown by a constricted lumen with rigid walls), three cases; (2, 4, and 7).

Localized infiltration of the wall without definite tumor formation (shown by a localized area of irregularity and decreased flexibility of the wall); two cases; (9 and 10).

Single large tumor (shown by a single rounded area of filling defect); two cases; (3 and 6).

Annular infiltration in the prepyloric region (shown by an annular filling defect), one case; (5).

2. *Region of the Stomach Involved by the Tumor*.—The whole stomach, three cases; the pars cardiaca, three cases; the pars media, one case; lesser curvature, two cases; greater curvature, one case; the pars prepylorica, one case.

3. *The Roentgenologic Diagnoses Made Were*: Polyposis, three cases; scirrhus carcinoma, two cases; annular carcinoma, one case; carcinomatous ulcer, one case; malignancy, one case; not diagnosed, one case; not satisfactorily examined, two cases.

ANALYSIS OF RECENT CASES IN LITERATURE

A similar analysis of the case reports in recent literature (Holmes has analyzed the cases up to 1926) shows the following findings: Holmes, eight cases; Crohn, one case; Singer, one case; Junghaven, four cases.

Type of Tumor.—Multiple polypoid growths, one; diffuse infiltration, one; localized infiltration without tumor, two; single tumor, four; annular prepyloric infiltration, five; annular prepyloric infiltration with a polypoid tumor, one.

Roentgenological Diagnoses.—Carcinoma, nine; linitis plastica, one; lymphoblastoma, one; not made, three. The diagnosis of lymphoblastoma was not made entirely on the roentgenological findings.

COMMENT

From the above findings alone, no other conclusion is possible than that of Holmes' that the roentgen findings are not sufficiently characteristic to permit of a specific diagnosis of lymphoblastoma. But he also mentioned that in some cases the roentgen appearance differed from carcinoma in that the peristalsis was not interfered with to the same extent. Junghaven a year later suggested that the definite motility of the outline might be specific for one stage of the disease. This persistence of peristalsis in the presence of deformities that otherwise would be diagnosed as cancer seems, from a deductive point of view, to be the only differentiating sign.

Unfortunately, in some of the present series of cases, which were seen some years ago, the question of peristalsis is not mentioned. However, applying the test above to them, the undiagnosed patient (Case 2) should now be called lymphosarcoma.

Benign polyposis of the stomach does not inhibit peristalsis, so that this point cannot be made a differential for those cases showing polypoid growths. However, it would seem best to regard all cases showing polypoid lesions and clinically suspected of malignancy as lymphoblastic for a period long enough to apply a therapeutic test of irradiation.

In this series, Cases 8 to 11 are entirely from the Stanford Hospital and Case 2 was examined roentgenologically at that institution. We desire to express our thanks to Doctors Newell and Chamberlain for their whole-hearted coöperation and, through them, to the other members of the staff who so willingly gave their consent to our studying their records. Some of these cases will be reported fully from the clinical aspect in a later paper.

SUMMARY

Eleven cases of lymphoblastoma of the stomach are presented from a roentgenological aspect with the pathological findings necessary to explain the changes shown by x-ray.

It is shown that there is no type of lesion or region of involvement characteristic of lymphoblastoma, and therefore no characteristic roentgen finding.

When, however, gastric peristalsis persists with a lesion of the stomach it is most likely to be lymphoblastoma.

Gastric polyposis in a patient suspected of malignancy clinically, should be regarded as a lymphoblastic lesion and its response to x-ray therapy tried.

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University of California Hospital.

DISCUSSION

ADDISON E. ELLIOTT, M. D. (510 Medico-Dental Building, San Diego).—Doctors Ruggles and Stone

TABLE 1.—*Proved Lymphoblastomata of the Stomach*

CASE	X-RAY FINDINGS	PATHOLOGICAL FINDINGS
1. R. C. Female Age 33	Multiple irregular rounded filling defects of the entire stomach suggesting sessile tumors protruding into the lumen. Peristalsis was not seen under the fluoroscope, but was at times visible on the abdomen. Five-hour: 50 per cent retention. Diagnosis: Multiple tumors of the stomach.	Operation and postmortem, a few days after examination. General polyposis of the entire stomach. One large ulcer along the greater curvature where polypoid tumors were confluent. Very little muscle invasion. Only other involvement was a few small glands near stomach.
2. J. B. S. Male Age 65	A generally constricted stomach emptying rapidly. Shallow peristaltic waves shown by the films. Not diagnosed.	Postmortem one month after examination. Stomach wall uniformly, diffusely thickened by tumor infiltration. Considerable muscle invasion but not destruction. Extensive local spread. No peripheral glands.
3. A. T. E. Female Age 47	Constant, large, irregular, rounded defect on the lesser curvature involving the cardiac orifice. Diagnosis: Probable malignancy. After x-ray therapy, the defect almost completely disappeared.	Operation. Firm mass high on the lesser curvature firmly bound down to liver and diaphragm. A few small local glands. No peripheral glands.
4. J. G. Male Age 80	Extensive defect of the body of the stomach. No peristalsis. Diagnosis: Scirrhus carcinoma.	Postmortem. Diffuse thickening of wall of lesser curvature and posterior surface. Considerable muscle invasion and destruction. Extensive spread to adjacent organs and structures. No peripheral involvement.
5. J. W. M. Male Age 48	Irregular annular deformity of distal third of stomach with rounded defects protruding beyond annular cuff. No peristalsis. Mediastinal tumor. Symptoms relieved by x-ray therapy. Diagnosis: Carcinoma.	Operation six months before examination. Large mass attached to duodenum. Perforated ulcer. Diagnosed as giant-cell sarcoma. Peripheral involvement. Diagnosis of lymphosarcoma made from cervical gland shortly after x-ray examination.
6. L. F. Male Age 75	Not obtained because of patient's condition, but would have been similar to Case 3.	Postmortem. Large mass just posterior to cardiac orifice. Similar tumor in mediastinum.
7. J. S. Male Age 56	Unsatisfactory examination because of condition, but would have been similar to Case 2.	Postmortem. All of stomach wall except the pylorus was thickened by infiltration. One large tumor mass protruded into stomach. Muscular wall destroyed. Extensive spread to adjacent organs. No peripheral involvement.
8. T. S. Female Age 38	Considerable irregularity of greater curvature in pars media. Stomach wall flexible and rugose. Peristalsis not mentioned. Diagnosis: Polyposis.	Operation. Infiltration and partial destruction of mucosa and submucosa of almost entire greater curvature with shallow ulceration. Slight muscle infiltration. No local extension. No peripheral involvement.
9. M. C. Female Age 45	Marked irregularity of contour of lesser curvature at the pars media. Peristalsis not mentioned. Diagnosis: Carcinomatous ulcer.	Operation. Infiltration and partial destruction of mucosa and submucosa producing ulceration of lesser curvature. Muscle infiltration. No local extension. No peripheral involvement.
10. G. K. D. Male Age 60	Constant irregularity of lesser curvature in region of incisura angularis. Wall less flexible in this area. No peristalsis across involved area. Diagnosis: Early scirrhus carcinoma.	Operation and postmortem. Flat tumorous infiltration limited to freely movable stomach and a few glands at time of operation. At postmortem there was a dense infiltration of the whole upper abdomen. At operation, mucosa and submucosa invaded. Muscle hypertrophied but not invaded. No peripheral involvement.
11. W. L. H. Male Age 38	Upper third of descending limb of stomach showed coarse irregularities, as if irregular masses almost filled the lumen. Wall of stomach between gas bubble and diaphragm about three centimeters thick. Peristalsis normal. 30 per cent six-hour residue. Diagnosis: Probable polyposis.	Operation. Large tumor centering on lesser curvature, but diffusely infiltrating the stomach wall and extending in to the liver and to retroperitoneal glands. Local spread. No peripheral involvement.

are to be commended for bringing this difficult and unusual condition to the attention of roentgenologists. The paper is timely. In the beginning of x-ray diagnostic work which was related to the gastro-intestinal tract, most all large filling defects of the stomach were diagnosed as carcinoma or sarcoma, and in almost all cases the diagnosis was correct. However, in time, with the accumulated experience of roentgenologists, and with more accurate correlation of pathology and x-ray findings, it has been established that there are a considerable number of cases of filling

defects of the stomach that should not be definitely diagnosed as carcinomata. The authors mention "the persistence of peristalsis in the presence of deformities" as the one differentiating sign. The radiologist doing fluoroscopic work should be watchful for this condition. It occurs to one that if roentgenologists would routinely examine the stomachs of patients with known lymphoblastoma who are coming to the x-ray therapy department, an occasional stomach involvement would be discovered, more experience would be obtained, and from this

accumulated experience it is possible that other diagnostic signs would be established.

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HENRY SNURE, M. D. (1501 South Figueroa Street, Los Angeles).—The authors deserve commendation for their efforts to differentiate lymphoblastoma from the benign and carcinomatous tumors of the stomach. While much progress has not been made, yet it is a beginning and should stimulate other roentgenologists to carefully search for these rare conditions; other worthwhile contributions to diagnosis have had a less auspicious beginning.

Results may be expected if we follow the suggestion of Doctor Elliott to repeatedly examine the stomach of patients who have lymphoblastoma of other parts of the body. Repeated examinations should inform us how long peristalsis persists in areas of filling defects and in what type of filling defect we should not expect it. We should also pool similar observations of the other noncarcinomatous invasions of the stomach.

VARICOSE VEINS—TREATMENT BY THE INJECTION OF SCLEROSING SOLUTIONS*

By THOMAS O. BURGER, M. D.

AND

HALL G. HOLDER, M. D.
San Diego

DISCUSSION by Emile Holman, M. D., San Francisco; John Homer Woolsey, M. D., San Francisco; Norman J. Kilbourne, M. D., Los Angeles.

VARIX of the extremities and its complications represent a common condition, inflicting semi-invalidism on many otherwise healthy individuals with coincident economic loss. Many who have symptomless varicosities consider them unesthetic. Past treatment, both palliative and surgical, has met with failures, the latter frequently with recurrence and increased invalidism and disfigurement. The development of the injection treatment has appeared in the literature on numerous occasions and needs no reiteration.

ANATOMY AND PHYSIOLOGY

Bicuspid valves divide the saphenous vein into a series of chambers, capable of being emptied in only one direction. Lateral pressure by muscular action accomplishes emptying. The valvular mechanism in the deep system is efficient, but lack of direct muscular support for the saphenous vein renders it less resistant to those factors tending to produce varicosities. The valves in the perforating veins act as safety vents for the superficial system, permitting blood to flow from the overtaxed saphenous vein to the femoral.

Recently interest has been aroused in the disturbances of venous pressure. This pressure is normally influenced by capillary pressure, the suction action of the thorax, the hydrostatic pressure, and the blood volume. Pressures ten to thirty times normal have been demonstrated in varicose veins. The stagnation produced by this

* From the surgical clinic of Thomas O. Burger, Clyde J. Osborne, and Hall G. Holder.

* Paper read, with motion picture presentation, before the General Surgery Section of the California Medical Association at the fifty-eighth annual session at Coronado, May 6-9, 1929.

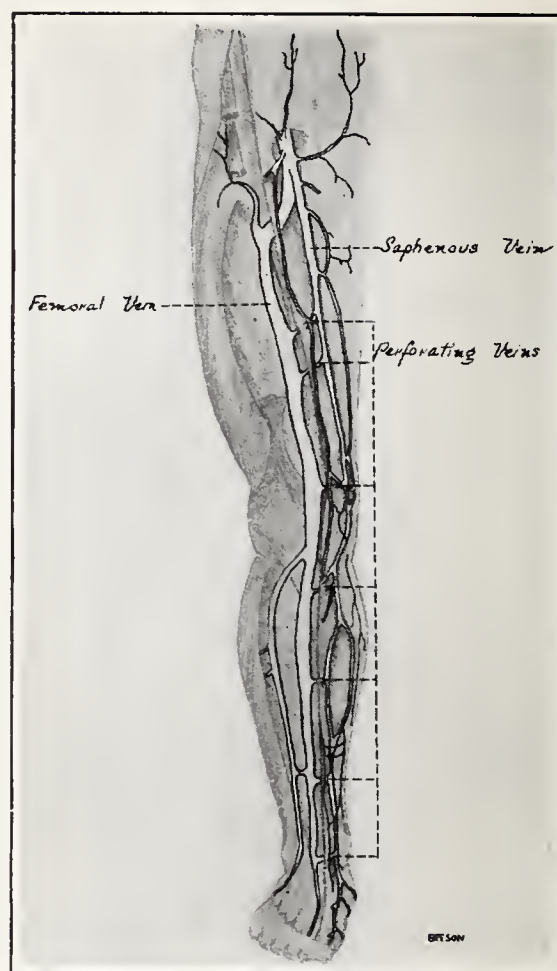


Fig. 1.—Drawing showing normal deep and superficial venous system of extremity

increased venous pressure is responsible for an increased carbon dioxide and decreased oxygen content in venous blood. The local anoxemia thus produced, with resultant acidosis, accounts for the nutritional disturbances in surrounding tissues leading to ulcer formation.

ETIOLOGY

From whatever cause, increased venous pressure, with resultant valvular insufficiency, is of prime importance in the production of varicose veins. The following are important predisposing causes: (1) heredity; (2) occupation; (3) pregnancy; (4) endocrine imbalance; (5) trophic disturbances; (6) thrombophlebitis; (7) circulatory insufficiency.

PATHOLOGIC ANATOMY

Gradual dilatation from back pressure leads to permanent malnutrition of the vein walls with resultant sclerosis. Muscle and elastic tissue are

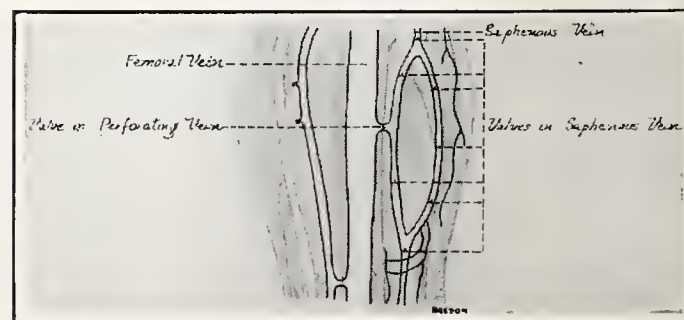


Fig. 2.—Cross section, calf of leg, showing valves

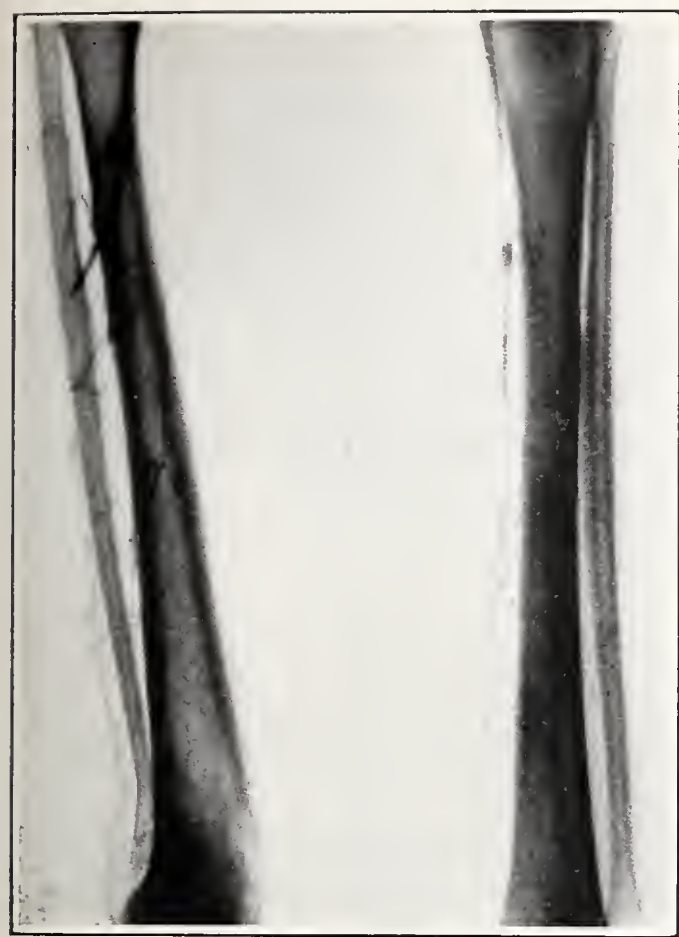


Fig. 3.—Outline of normal venous circulation of leg, using intravenous sodium iodid. Note valves

converted into fibrous tissue which stretches irregularly under pressure, producing tortuosity and sacculation, with coincident valvular insufficiency. Gross pathologic changes secondary to varicose veins are cyanosis, edema, induration, pigmentation, and malnutrition. With or without trauma, ulcer appears in this fertile soil.

DIAGNOSIS

Of prime importance in diagnosis is the establishment of the competency of the deep venous circulation.

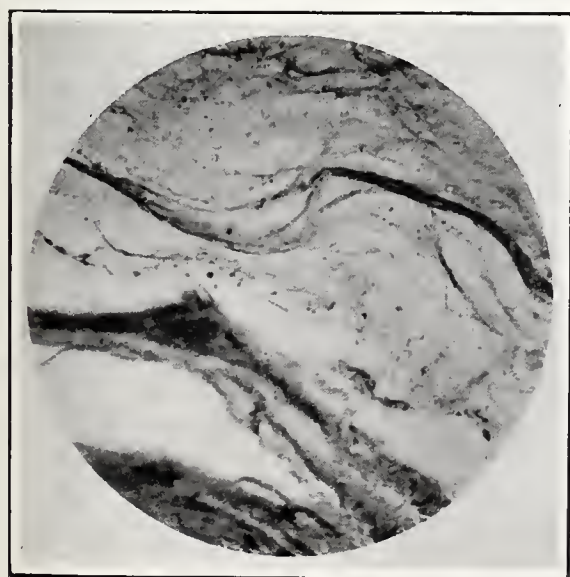


Fig. 4.—Photomicrograph cross section of normal vein

Trendelenburg Test.—To elicit, first empty the veins in question by raising the limb and gently stroking in the upward direction. The long saphenous vein is now digitally compressed just at the point of its junction with the femoral vein, at the fossa ovalis, and the patient asked to stand up. The varices of the thigh fill slowly and gradually from the periphery. With the removal of the pressure and in the presence of insufficient valves, the unsupported blood column fills all the varices. This phenomenon demonstrates insufficiency of the superficial venous system and is referred to as a positive Trendelenburg test. Rapid filling of varices, in spite of the compression of the long saphenous vein, denotes simultaneous insufficiency of the valves in the perforating veins as well.

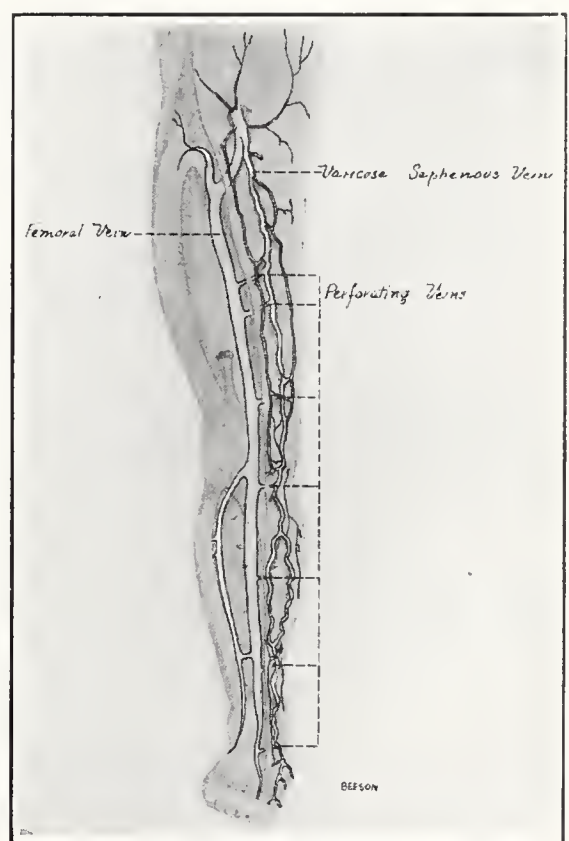


Fig. 5.—Drawing showing development of varicose saphenous vein

Perthes' Test.—This demonstrates a flow from the superficial into the deep veins, into which blood is sucked by muscular action. A tourniquet is applied to the thigh to compress the superficial veins and the patient asked to walk about the room. If the valves of the perforating veins are intact the varices diminish in size; if incompetent, back flow results. Finally, if after compression the tourniquet is released, the test is negative and all valves are competent.

Tests of Arterial Circulation.—Arteriosclerosis and diabetic gangrene, and particularly thrombophlebitis, are often associated with dilated inflamed veins. The adequacy of arterial circulation is important in these cases.

In normal subjects if a drop of 1:1000 solution of histamin acid phosphate is placed on the skin and six or seven punctures made through

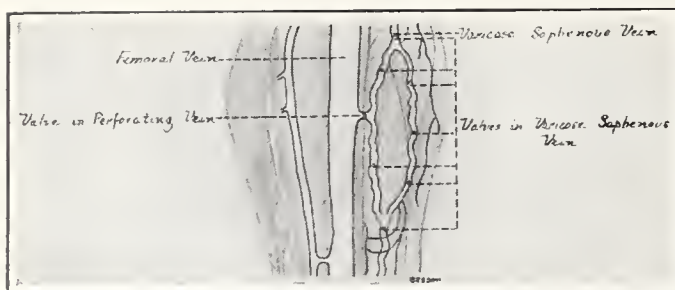


Fig. 6.—Cross section, calf of leg, showing incompetent valves in saphenous and perforating veins

the solution into the skin, there is a resultant red area followed by a wheal surrounded by a red flare. The degree of flare and the latent period of its appearance are the points to be recorded. The flare is caused by the dilatation of the small arterioles and is the result of a local reflex. A delayed or absent flare on the leg in the presence of a normal reaction elsewhere has been interpreted as an impairment of arterial flow. De Takats reports a series of thirty cases of varicose veins in which approximately 50 per cent showed abnormal reaction.

TREATMENT

In view of the foregoing considerations the chief aim in the treatment of varicose veins should be to diminish venous pressure. This may be accomplished to some extent by palliative support. Surgical removal of the affected segments has been practiced for years, but has met with numerous failures in that reformation of the varices have occurred through other anastomotic channels. Frequently the perforating veins are the source of these recurrences, as they are not amenable to surgical removal. The more recent injection treatment is simple, effective on the entire varicose system, ambulatory, nondisabling, and relatively painless. Failures are practically unknown, recurrence is variously estimated from 6 to 15 per cent in which reapplication of the treatment gives satisfactory results.

TECHNIQUE

Preparation.—Tourniquets are applied above and below the varicose area to arrest any superficial venous circulation. The leg is then cleaned with alcohol, the site of puncture painted with iodine and injection made with the patient in the sitting, standing, or semireclining position.

Solutions.—A variety of solutions have been tried, but those best standing the test of time have been the salt, sugar, and sodium salicylate. We prefer the 20, 30, and 40 per cent salicylate solutions because of their higher sclerotic index. No test has been made of the more recent combination of 20 per cent salt solution and 50 per cent sugar mixed in equal parts. The claim for the latter is a high sclerosing index, lack of tendency to slough on perivenous injection, and lack of pain following injection.

Injection.—Inject slowly so as not to overdistend the vein with resultant extravasation at

the site of puncture. Perivenous infiltration is a sign for immediate neutralization with normal salt solution, followed by vigorous massage.

After-Care.—Following withdrawal of the needle, pressure is made with a gauze sponge to collapse the vein, so giving the sclerosing solution better contact with the intima and also to prevent seepage into the subcutaneous tissues. This pressure is maintained for two days by the application of an elastic bandage. The patient is allowed to rest twenty to thirty minutes until all cramplike pains, as the result of the injection, have disappeared. A considerable period of rest is further important to keep the sclerosing solution limited to the saphenous system, as muscular action is known to have forced blood into the deep circulation by way of the perforating veins.

ACTION OF SCLEROSING SOLUTIONS

The injection of sclerosing solutions does not act to produce blood coagulation; they are in effect anticoagulants, *in vivo* as *in vitro*. There is first an irritation of the endothelium with congestion and proliferation. The fibrin of the blood is deposited on the walls of the injected vessel, adhering to the entire surface of the injured endothelium.

In the third stage sclerosis sets in, involving all coats, followed by atrophy. Jenter and Askazy mixed collargol in suspension with a solution of sodium salicylate, which, after injection, was found to have penetrated all coats of the vein. This chemical irritation of the vein has been designated by Sicard as a *venitis*, and is not to be confused in any way with the infectious process *phlebitis*. The two processes are entirely sepa-



Fig. 7.—Outline of varicose venous circulation of leg, using intravenous sodium iodide

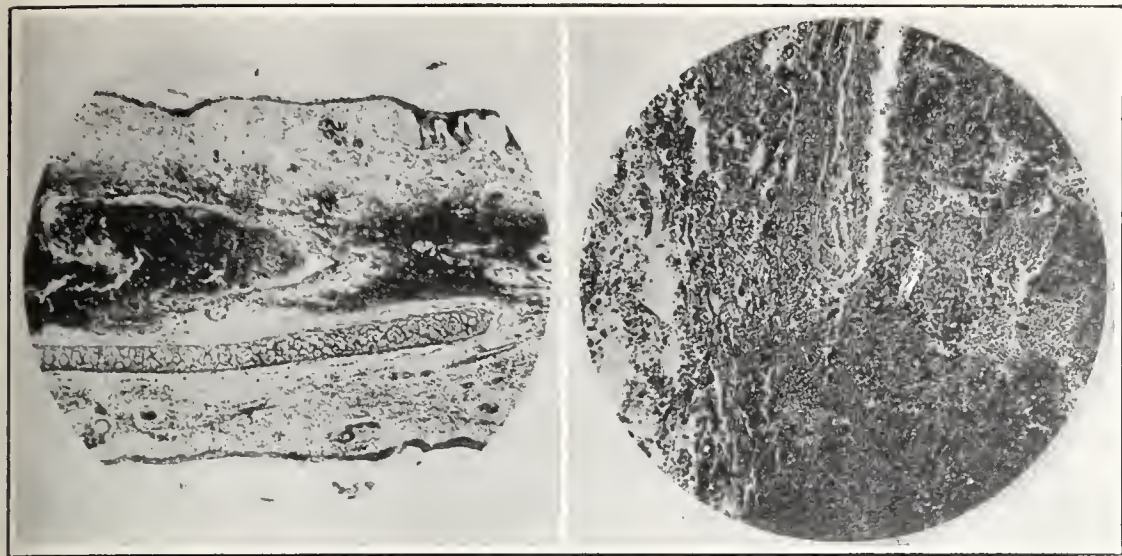


Fig. 8.—Low power microphotograph of normal rabbit's vein injected with 40 per cent sodium salicylate solution. The vasa vasorum differentiates the organized mass from the vein wall. (Courtesy of Doctor Kilbourne.)

Fig. 9.—High power microphotograph of normal rabbit's vein injected with 40 per cent sodium salicylate solution. Note organization of vein. (Courtesy of Doctor Kilbourne.)

rate and distinct. In phlebitis there is an inflammatory process with thrombosis and tendency to embolism.

COMPLICATIONS

The complications that may follow injection treatment are:

1. Ulceration and sloughing, the result of perivenous injection. These are best counteracted by immediate dilution and vigorous massage.
2. Painful venitis, resulting from the penetration of all structures of the vessel by the sclerosing solution. These are best treated by rest in bed, elevation, and hot applications.
3. Embolism. In 54,000 recorded cases it occurred seven times, four cases being complicated by an acute phlebitis, a recognized contraindication to this treatment. The remaining three were in elderly persons in impaired health. The thrombotic process in venitis is an organization of the entire vein which does not permit of embolism, especially in the presence of static or reversed blood flow in the varicose vein.

END RESULTS

Two hundred and ninety-four cases have been treated by us with a good result in each instance. Minor recurrences have occurred which responded well to reinjection. In each instance care was exercised in the selection of the cases. Chief among contraindications are chronic degenerative diseases, recent history of acute phlebitis, foci of infection, and pregnancy.

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DISCUSSION

EMILE HOLMAN, M. D. (Stanford University Hospital, San Francisco).—The widespread acceptance of the injection treatment of varicose veins in the past few years indicates the hopefulness and faith of the medical profession that a simple and successful method of curing varicosities has finally been achieved. As time goes on it is becoming apparent that veins once thrombosed may become recanalized with return of the former varicosities, and that collateral channels may open up with the appearance of new

varicosities. The latter are undoubtedly due to failure to produce thrombosis up to the entrance of the saphenous vein into the femoral vein, just as in former days surgical failures were frequent when the operator did not ligate the saphenous vein close to its entrance into the femoral vein. Unwillingness to inject the saphenous vein near the fossa ovalis, because of the danger of spread of the thrombosis into the femoral vein, may make it necessary to combine surgery with

injections by ligating the saphenous vein in the groin under local anesthesia, followed by localized injections of sclerosing solutions wherever varicosities appear on the surface. Careful follow-up examinations are beginning to disclose an increasing number of recurrences as time elapses after injection, and experience may eventually dictate the adoption of the above combined method of treatment.

The authors advocate the injection of normal salt solution in an area accidentally infiltrated with the sclerosing solution. We have found distilled water to be more effective in diluting sclerosing solution which has entered tissues outside the vein.



JOHN HOMER WOOLSEY, M. D., AND RAYMOND J. MILLZNER, M. D. (490 Post Street, San Francisco).—The previous eradication of varicose veins by surgery gave end results that were not satisfactory, chiefly because of failure to recognize the source of reflow and the anomalies that occur.

The present treatment by obliteration of the superficial vein by sclerosing solutions is now a recognized and safe procedure. However, as the authors indicate, preliminary tests are of importance. Certainty that the deep or central venous system is patent is the one essential determination to be made. In our opinion, inadequacy of the arterial circulation is of no account, for, even if it does exist, it will be benefited by obliteration of a portion of the venous channels, thereby balancing the circulation.

The choice of solutions is wide. The solution that can be given by a fine needle, that is painless in the giving, and is not toxic to the patient, is preferable. Quinin hydrochlorid and urethane fulfills the above demands and has given us the most satisfactory reactions and results.

No serious complications have occurred in the treatment of over five hundred cases, and the results are most gratifying to both patient and physician.



NORMAN J. KILBOURNE, M. D. (2007 Wilshire Boulevard, Los Angeles).—One of the best parts of this paper is the caution as to choosing patients for injection. If you find that on the average you are refusing treatment to one patient in every ten, you are about right. The authors mentioned the Trendelenburg and Perthes' tests for patency of the deep veins. These

are of value and are used at times in our clinic, but I place more reliance on bandaging the legs from the ankle to just below the knee and again from just above the knee to the groin very firmly with an Ace bandage and then directing the patient to walk for ten minutes. If the deep veins have already been occluded by previous disease, then occlusion of the superficial veins by the bandages will shut off all return circulation and the patient will have severe pain. One should rarely inject the veins of such patients.

Aged patients with sclerotic blood vessels are prone to develop thromboses in the veins even without injection, and are prohibitive risks. In one such case which I saw in consultation, the physician in charge of the case was disappointed when I opposed treatment of the patient by injection. Two days later, without having been injected, the old man developed spontaneously a severe phlebitis with a temperature of 104 degrees, from which he barely escaped with his life. Had I allowed his veins to be injected, the injections would have been blamed for the phlebitis and he would probably also have had a fatal embolism.

The English workers are extremely cautious about injecting patients who have distant foci of infection such as infected tooth roots and tonsils. On the other hand, Gaugier pays no attention to them. I am becoming gradually more liberal in these cases when the patients are young.

A history of previous phlebitis, or milk-leg, raises difficult questions. Gaugier, after trying it on eight such cases, finally decided never to inject them. The average worker will be wise in refusing to treat such cases. There are exceptional instances where it is allowable under extreme precautions to inject such, but the responsibility is very heavy. Each case requires individual study and surgical judgment.

Most fatalities have occurred after the use of hypertonic sodium chlorid or glucose, and I still withhold approval of their use in most cases. Contrary to the claims of some workers, I have a report of an enormous slough after glucose injection. A patient in this city died recently with a typical bichlorid of mercury poisoning after its use in injecting varicose veins. It should never be used. I still use sodium salicylate in very large veins, but use more and more the quinin solutions in the smaller veins, especially in those near the ankle. The quinin solutions are painless and almost never cause a slough. If quinin is used, the first dose should not exceed four minims, as occasionally a patient with a peculiar sensitivity to quinin will show a picture of alarming collapse if larger doses are given.

The best treatment for a venitis is simple bandaging of the part with an Ace bandage. The pain is at once relieved.

I would depart from the speakers in their advocacy of the time-honored treatment of phlebitis with hot applications. Such applications tend to cause alternate contractions and dilatations of the veins with resultant danger of dislodgment of a thrombus and embolism. The best treatment is rest in bed with an Ace bandage around the site of phlebitis. If one desires, he may follow Meisen's suggestion and apply pressure with a pelote over the vein near the fossa ovalis.

The suggestion made by the reviewer that in some cases the vein be first ligated high in the thigh before injection, is reminiscent of the old method which Tavel took over from Trendelenburg and practiced at Berne in 1904. It is still practiced by workers in Italy, but the records of this procedure show a higher incidence of embolism than does simple injection.

TRAUMATIC RUPTURE OF THE KIDNEY*

REPORT OF TEN CASES

By EDWARD W. BEACH, M. D.

Sacramento

DISCUSSION by Miley B. Wesson, M. D., San Francisco;
Louis Clive Jacobs, M. D., San Francisco.

THIS article is written to emphasize: (1) the common occurrence of ruptured kidney as a pathological entity; (2) the pitfalls in exact diagnosis which call for urological skill; (3) conservatism, as the apogee of treatment.

To aid recapitulation it is fitting to consider the subject under appropriate captions.

Although Galen in 1561 described subcutaneous rupture of the kidney, little attention was paid to the lesion until the classical work of Royer in 1839. Within the last few years literature has been enriched by numerous contributions due, doubtless, to the increasing speed and complexity of modern civilization which supplies an endless chain of cases and to advancement in the practice of urology.

ETIOLOGY

The mechanism of forces that produce traumatic rupture is somewhat controversial. For practical purposes it may be considered that the force of the impact is sufficient to compress the kidney between the floating ribs above, and the transverse processes of the vertebrae beneath, generally the first and second lumbar. Any pathologic condition of the kidney, especially one characterized by increased intrarenal pressure predisposes to rupture since in these cases there is usually a coincidental thinning of the renal parenchyma. In such a kidney only a slight blow or concussion, as a fall upon the buttocks, or a sharp muscular flexion, may precipitate a fracture. Rupture of the kidney is apparently commonest in men, more frequent on the right side, and the site is most often the posterior surface.

CLASSIFICATION

From the standpoint of pathology, Tuffier's original division into (1) ecchymosis, (2) subcapsular rupture, (3) transcapsular or total rupture, stands unchallenged. The latter group may or may not involve the kidney pelvis.

Many cases of ruptured kidney fall into the subcapsular category, and are benign clinically, responding promptly to expectant rest in bed. There is little blood loss usually, since the oozing from the lacerated surface is promptly checked by internal resistance. Degeneration of damaged secretory tissue rapidly follows, leaving in its wake the inevitable fibrous tissue substitution. Functionally, as indexed by the dye test, there is little detectable damage remaining.

Complete fracture of the kidney offers a different problem because of hemorrhage and extravasation of the urine. The hemorrhage is seldom sufficient to cause death in a few moments except where the pedicle is torn, and this alone is a rare

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accident. In cases coming to the autopsy table as a result of terrible external violence, other visceral injuries frequently overcast the kidney picture. Doctor McDonnell, Sacramento County physician for fifteen years, has autopsied ten cases with torn kidney pedicles, all with other grave concomitant lesions such as ruptured liver, spleen, etc., and in each case death had occurred in a brief interval after the accident. In other words, an application of force of sufficient vehemence to tear the pedicle of the kidney in its deep and protected position is prone to injure as seriously contiguous vital organs.

The hemorrhage from the torn surface may form a huge clot about the kidney, completely surround the organ and stop bleeding by internal pressure. It may cease by thrombosis of the renal vessels or the ooze may continue slowly for several days, forming a huge mass in the loin and gradually reduce the hemoglobin to a surprising degree. In rare cases the peritoneum is torn, and bleeding occurs intraperitoneally. In these cases the lesion is almost always on the anterior or ventral kidney surface.

Extravasated urine, if sterile, may be absorbed in small quantities; but it more often becomes infected and constitutes a retroperitoneal abscess. In other cases the urine diffuses through the tissues and sets up an extensive cellulitis. A collection of urine in the loin always augurs the presence of an injury through a calyx or into the renal pelvis. Lacerated kidney tissue *per se* is unable to secrete urine.

In the transcapsular type of rupture where a single lesion exists, it is more often transverse, due probably to the fact that the kidney development is parallel to the tubules and vessels.

Rupture of the kidney pelvis alone is extremely rare owing to its sheltered position, its great depth and inherent muscular properties. Even under maximum distention it seldom ruptures, the kidney itself usually bearing the brunt of any blow.

SYMPTOMS

There is a wide diversification of the clinical picture presented. In severe cases the patient is acutely and critically ill.

Shock and Collapse.—There is always some shock. It may be of momentary duration only and the patient continue with his work, as in case seven, or it may continue, as it did in Cases 1, 2 and 3, for several days. It may be slight at the outset only to become magnified later, due to continued hemorrhage, as in case ten. The most extreme cases of shock are encountered, it seems, in intraperitoneal bleeding. The shock bears a direct relationship in many cases to the character and magnitude of applied external force rather than to the extent of actual kidney injury.

Hematuria is the most constant of all signs, though not infallible, because it may occur early and subside quickly. It may continue in the form of decolorized red blood cells and free blood pigment for a considerable time after the accident.

Mass in the Loin.—This occurs only in the complicated cases and varies in size, extent, and rapidity of accumulation. The location of the injury to the kidney determines whether the mass consists of blood, urine, or both. It rarely appears in cases which show injury to the ventral kidney surface.

Pain and Tenderness.—Pain is experienced both in front and in the back over the affected side, also often low in the groin. Tenderness is not only elicited in the lumbocostal angle, but is often widespread anteriorly and posteriorly.

Muscle Rigidity.—Often unilateral, it may involve the abdominal muscles on both sides. The leg on the affected side is also drawn up at times.

Evidence of Peritoneal Irritation.—This group of symptoms often clouds the picture. Nausea is most common, vomiting is frequently present, as likewise is tympanitis. Hiccough is rarer.

Temperature is slightly elevated, rarely above 101 degrees Fahrenheit at the beginning.

White blood cells are rarely above 20,000, and often 15,000.

Hemoglobin is usually decreased in direct proportion to the bleeding.

Coincidental injuries are: contusions, abrasions or ecchymosis over the side involved, fractured ribs, traumatic pneumonia, internal injuries, etc.

DIAGNOSIS

Simple fractures of the kidney are not uncommon in industrial practice. Because they simulate intraperitoneal lesions and often ameliorate rapidly under watchful waiting in bed, the diagnosis may be overlooked. Careful history taking and diligent observation of clinical signs are essential. Possibility of kidney rupture should be thought of in all cases of force applied to the loin. Concurrent injuries should not be allowed to obscure the underlying renal injury. All suspicious cases warrant careful study by a trained urologist. Pyelograms are invaluable in many cases to confirm the diagnosis, to accurately depict the lesion and to provide an unabridged description thereof.

Even superficial study reveals the multiplicity of symptoms presented by these cases and demonstrates the arduousness of accurate correlation. In simple cases, even though the patient demonstrates all presumptive evidence of ruptured kidney, the evidence is presumptive only and not conclusive. Might the accident not activate previously "silent" pathology in the affected side? A clinical diagnosis made by inference is not a comprehensive and scientific one, or, in the words of Doctor Deaver, "You walk by faith and not by sight." The valuable information obtained and the brief interval required to do a pyelogram more than compensate for any inconvenience or possible hazard to the patient. However, at times the patient's condition precludes their employment and a nicety of judgment is requisite in the decision.



Fig. 1 (Case 1).—Rupture through middle calyx with extravasation of pyelographic medium in the tissues.



Fig. 2 (Case 1).—Organized blood-clot showing lacerated bleeding kidney within.



Fig. 3 (Case 1).—The upper half of the kidney was blanched and ischemic. The lower portion showed some mottling, but for the most part was red and congested.

TREATMENT

This might be compressed into assiduous study, precise interpretation of the clinical signs and conservatism whenever possible.

At first, of course, expectant watching and appropriate measures are necessary to combat shock. It is true that many cases get well if left alone, but it is equally true that other cases are retarded in recovery and actually jeopardized by an unwise "Pollyanna" attitude. Especially is this true in cases which have urinary extravasation, where sluggish action may necessitate a nephrectomy or may even spell death. Likewise prompt action is called for in cases of intraperitoneal bleeding.

In cases showing a loin tumor which rapidly increases in size, thus giving evidence of continued internal hemorrhage, or in doubtful cases an exploratory operation is indicated. The patient's condition permitting, the entire kidney and pelvis should be exposed and carefully searched for tears, rents or lacerations.

Extreme conservatism should now be manifested and a nephrectomy be done as seldom as possible. Badly comminuted or pulpified kidneys necessitate removal, as do also kidneys which evidence gross preëxistent pathology. Extensive damage to the pelvis or a complete transverse tear here also calls for nephrectomy. Resection in suitable cases is infinitely preferable to removal.

Bleeding can usually be controlled by sutures and, if necessary, a bit of fat may be used as a brace to prevent the sutures cutting through the kidney tissue. Packing is rarely necessary.

Ample drainage must be given in all cases. In many cases a fistula persists for several months after operation, especially if the case is complicated by copious extravasation of blood or urine.

REPORT OF CASES

CASE 1.—The patient, a 43-year-old male, fell about thirty feet, landing with his right loin across a fallen tree trunk. He was kept in the camp hospital because of shock and a compound fracture of the right arm. November 1, 1927, five days later, I saw him because of his hematuria. He looked extremely ill and vomited continuously. He had a tympanitic abdomen with a huge tender mass in the right loin. The abdominal muscles on the right side were rigid and the right leg flexed. The urine contained free blood pigment and 120 to 130 decolorized red blood cells per high dry field. Temperature was 100.5 degrees Fahrenheit; hemoglobin, 52 per cent; and white blood count, 15,800.

On cystoscopy the left kidney was normal. From the right ureter issued decolorized red blood cells and blood pigment. The phthalein appeared in ten minutes and only 10 per cent was recovered in thirty minutes. Fifty cubic centimeters of sodium iodid was slowly injected without the production of any pain or spasm (Fig. 1).

Operation was performed immediately after this examination. Upon opening the quadrangular space we came upon a huge chocolate-colored, ovoid mass extending above, up under the diaphragm and far down into the iliac fossa below. This mass could not be freed from the surrounding tissues, so an incision was made therein. The huge organizing blood-clot was found to be about two inches thick, and at the center lay the kidney (Fig. 2). A single fracture line was evident, directly in the middle of the kidney, blood continuing to ooze with each heart beat from the lacerated surface (Fig. 3). Nephrectomy was done and as much as possible of the huge clot was removed.

Laboratory examination of the specimen showed atrophic and degenerative changes in the tubules of the anemic portion and numerous infarcts in the turgid lower portion.

Patient made a recovery uneventful excepting for a fistula, which persisted for six months following the operation.

Comment.—In the light of subsequent study I believe a resection would have been the operation of choice here.



Fig. 4 (Case 2).—A rupture of the middle calyx with extravasation of pyelographic medium.

Fig. 5 (Case 2).—A schematic drawing of the findings at operation.

Fig. 6 (Case 2).—Pyelogram made one year after rupture, showing destruction of the middle calyx by scar formation and some blunting of the upper calyx.

CASE 2.—The patient, a 33-year-old male, on November 18, 1927, fell ten feet, striking his left loin on a pile of timber. He was hospitalized at the camp for three days because of shock, and I saw him five days later. He stated that he voided bright blood immediately after the accident, but twenty-four hours later the urine was clear.

He looked acutely ill. There was a large tender mass in the left loin. Abdominal muscles were fixed as a whole, and moderate distention, with slight nausea and no vomiting, was present. Temperature was 100 degrees; pulse, 108; hemoglobin, 54 per cent; white blood count, 14,900. Urine showed fifty red blood cells per high dry field.

Provisional Diagnosis.—Rupture of the left kidney. Patient was cystoscoped to gain additional information and to confirm the diagnosis. Right kidney was normal. Blood flowed entirely from the left kidney. In the left kidney phthalein appeared in three and one-half minutes, 20 per cent in thirty minutes. Sixty cubic centimeters sodium iodid was slowly injected with no pain and no spasm (Fig. 4).

Operation immediately followed. Exposure of the perinephritic tissues disclosed over a quart of jelly-like clots, urine and free blood surrounding the kidney. A transverse tear in the cortex of the kidney, radiating upward, was revealed about five centimeters in length, through which the finger could be introduced into the pelvis (Fig. 5). Bleeding was controlled by sutures and pressure packing.

Following operation, urine leaked profusely from the wound for one week, then it gradually ceased and became entirely dry on the twelfth day. Patient was discharged on the twenty-first day. A small fistula persisted for over three months.

One year later the patient reported that he experienced no bad effects from his accident except that he was not so strong as previously. He occasionally had backache when he worked strenuously. A cystoscopy with pyelogram was done. The phthalein appeared on the left side in three minutes, and 25 per cent was excreted in thirty minutes (Fig. 6).

Comment.—This case proves the value of conservative treatment.

CASE 3.—The patient, a 41-year-old male, on May 13, 1924, while crossing a railroad, riding upon a load of hay, tumbled and fell across the rails upon his left loin. He was taken to a hospital nearby in profound shock, where he was treated for fractured ribs, and traumatic pneumonia, which was subsequently diagnosed empyema. Following the accident, he complained bitterly of pain over his left loin, at the site of the rib fracture, but his symptoms were made diffi-

cult by the fact that he could speak no English. He voided bright red blood at first, but it cleared directly.

His fractured ribs, with the subsequent pneumonia, overshadowed the underlying kidney lesion. It was not until two weeks later that his urine was examined and found to contain pus and blood, and then only after a huge swelling had appeared in the left loin. He suffered chills, high fever, sweats, and gradually became weaker and emaciated. On June 9, when I saw him he was practically moribund.

Under local anesthetic an incision was made in the loin and evacuation of probably a gallon of foul-smelling urine and pus followed. A large drainage tube was placed in the side.

About ten days later a Garceau catheter was introduced into the left kidney, but no urine flowed from the catheter. Sodium iodid, injected, did not distend the kidney, but flowed through the fistula in the loin.

The patient's condition improved steadily. The urinary drainage from the side began to decrease the fifteenth day. The patient left the hospital two weeks subsequently. He would permit of no cystoscopy at



Fig. 7 (Case 3).—One year after traumatic rupture of kidney. Pyelogram made with eighteen-inch column of sodium iodid. (Courtesy of Dr. Miley B. Wesson.)

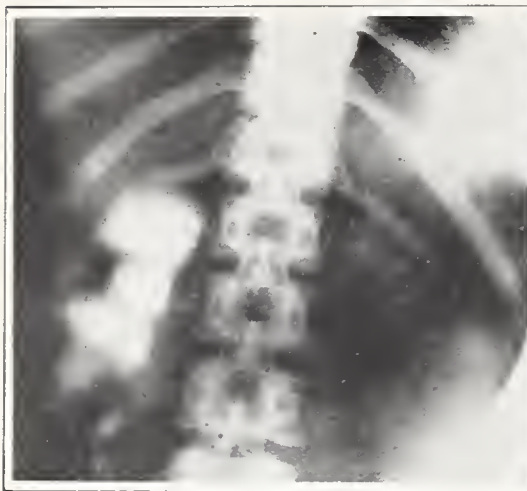


Fig. 8 (Case 4).—Injection of hydronephrotic sac with forty cubic centimeters of sodium iodid.



Fig. 9 (Case 4).—Same as Fig. 8, showing the sodium iodid flowing out into the perinephritic abscess.

this time. A small fistula persisted for six weeks. One year later the urine was uninfected, the phthalein was decreased 50 per cent, and pyelogram showed destruction of the middle calyx (Fig. 7).

Comment.—This case shows some of the difficulties of diagnosis. All attention was focused upon the rib fracture and the resultant chest condition, and the kidney was overlooked. There was a fracture through the middle calyx and pelvis of the kidney, through which urine slowly seeped.

CASE 4.—The patient, a 41-year-old woman, was first seen November 6, 1922. She had complained of "cystitis" for fifteen years, and eight years before had obtained temporary relief by a kidney fixation.

She complained of backache, pain over the right side, exhausting night sweats, loss of weight, and dysuria. Her white blood count was 19,600, and hemoglobin 70 per cent. Examination of the urine showed this to be pus-laden, containing mixed infection. Repeated examination demonstrated no Koch's bacilli. A catheter introduced into the right kidney after repeated attempts, due to an obstruction about two and a half inches outside of the bladder, demonstrated the presence of a large hydronephrosis with only a trace of phthalein in thirty minutes. The left kidney was normal. Operative removal was advised, but the patient refused. Dilatation of the ureter facilitated drainage of the sac, and this probably gave her temporary relief.

She was next seen on April 27, 1925. She reported that four days prior, while attempting to rise from a sitting position, she had experienced a lancinating pain in her right side. She slid to the floor, striking her loin a slight blow on the side of the bed and had suffered great pain in the right side ever since. There was little or no shock at the time the accident happened. She was having chills, fever, and sweats. She vomited constantly and looked extremely toxic. There was a small tender mass in the right loin, rigid abdominal muscles, and a 24,200 white blood count. Plain x-ray showed only an increase in the kidney shadow. A tentative diagnosis of ruptured hydronephrosis with perinephritic abscess was made. For scientific purposes a catheter was introduced into the right kidney after the patient was under an anesthetic. Accompanying pyelogram

showed extravasation (Figs. 8 and 9).

Operation. — At operation a large quantity of thin pus was evacuated from the loin. The site of the fracture was a small tear near the upper pole. Owing to the patient's condition, no attempt was made to remove the sac at this time. A large tube was used as a drain. Urine escaped from the incision for two weeks, when it gradually

ceased. Patient would consent to no subsequent operation and left the hospital.

Comment.—There is some possibility that this case belongs in the spontaneous category. Being familiar with the case urologically beforehand, no difficulty was experienced in making a diagnosis.

CASE 5.—This patient was an 18-months-old male who had never been sick. After a long journey to Oregon, his mother noticed that each time he urinated the diaper was stained with pus and blood, and that he cried lustily following the act. He disliked being moved and was extremely tender over his right side. He refused feedings, and the temperature ranged from 103 to 105. After resting a few days in Oregon, during which the patient grew steadily worse, he was brought by automobile four hundred and eighty miles to Sacramento. His condition then was critical.

On his arrival, August 21, 1924, examination showed a mass in the right loin, rigid muscles, and marked emaciation.

Operation was performed by Dr. J. B. Harris, who made an incision in the loin and found a quantity of cloudy fluid; both kidney and ureter being of unusually large size. Urine, however, could be squeezed easily into the bladder through the ureter. Owing to the precarious condition of the patient, no delivery of the kidney was carried out. An incision was made into the ureter for drainage.



Fig. 10 (Case 5).—A catheter introduced into a hydro-ureter through the loin.



Fig. 11 (Case 5).—A pyelogram made by injecting a hydro-ureter through a loin incision.

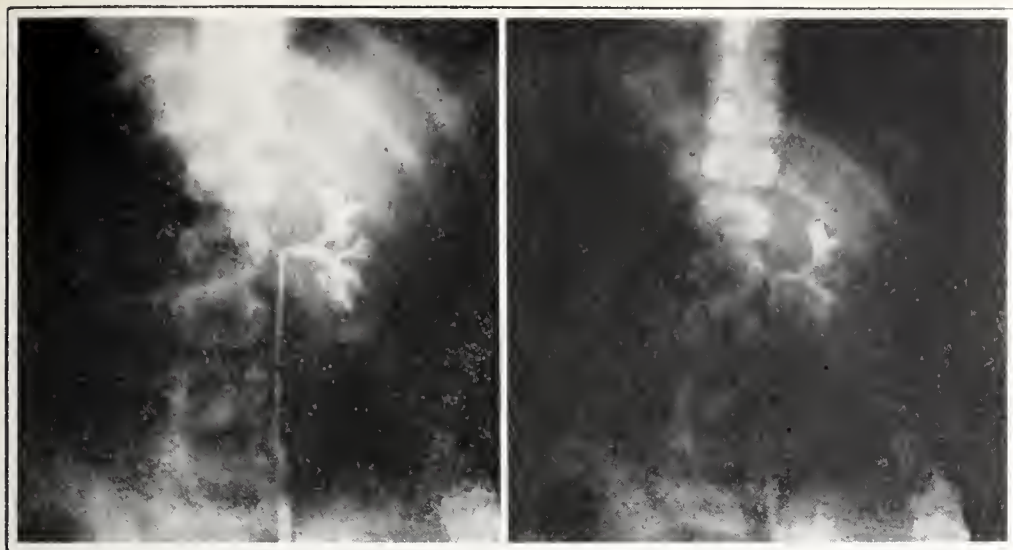


Fig. 12 (Case 6).—Subcapsular rupture through lower calyx.

Fig. 13 (Case 6).—Spontaneous repair of subcapsular rupture.

When I saw him a week later his general condition was greatly improved and his temperature was normal. Urine was pouring out copiously through the drainage tube. The tube was removed and a ureteral catheter introduced through the fistula in the loin. No cystoscope could be introduced into the bladder because of some anatomical deviation at the bulb. However, a nasopharyngoscope was easily introduced and the right ureteral orifice appeared normal. Mercurochrome-220 injected through a catheter in the fistula appeared quickly in the bladder. A Garceau catheter was introduced into the ureter through the loin (Fig. 10) and, although there was some leakage, 15 per cent phthalein was collected in thirty minutes. A pyelogram was then made (Fig. 11). The fistula closed in twenty days. The urine was sterile, but contained about twenty pus cells per high dry field.

Comment.—This was undoubtedly a case of subcapsular rupture of the kidney, secondary to increased hydraulic pressure, due to an obstructive hydro-ureteral angulation. It demonstrates the difficulty of diagnosis in the absence of pyelography.

CASE 6.—An eight-year-old boy was playing on the roof of the family garage on November 19, 1928, when he lost his footing and tumbled off in such a manner that his right loin struck a rail fence at the side of the building.

There was some shock and nausea which soon subsided, and directly he voided bright red blood. When I saw him in the hospital his temperature was 99.8 degrees Fahrenheit; white blood count, 13,400; urine showed blood cells too numerous to count. No mass appeared in the right loin. The blood continued unabated in the urine for four days, when a pyelogram was done. Sodium iodid, eight cubic centimeters, was slowly injected. Pyelogram showed subcapsular fracture with the injecting fluid collected beneath the capsule, apparently connecting with the lower calyx (Fig. 12). The tenderness over the right side slowly subsided. Blood cleared following the pyelogram, but returned about a month later, following a strenuous ball game. A pyelogram showed that the tear had healed (Fig. 13). Phthalein was normal.

Comment.—A subcapsular rupture that healed spontaneously with rest and hematuria stopped by pelvic irrigation, as in essential hematuria.

CASE 7.—A twenty-two-year-old male fell across a garage pit striking his right loin lightly, the force of the fall being broken by his arm. He felt weak, but continued his work for the remaining fifteen minutes of the day.

The next day he complained of tenderness over the right loin and was "faint" when he stood on his feet. He entered the Sisters' Hospital that day complaining of slight dysuria, nausea, pain over right loin (both anteriorly and posteriorly), and in the lower right iliac region. Red blood cells forty to fifty per high dry field in the urine. White blood count, 18,600; temperature, 99 degrees. Plain x-ray negative.

No mass appeared in the loin and the pain gradually subsided. Blood in the urine slowly cleared and white blood count fell. Patient would permit of no cystoscopic examination. In two weeks symptoms

disappeared and patient was able to return to work.

Comment.—This was clinically a case of simple rupture of the kidney, which responded to expectant rest in bed. This case demonstrates the lack of accuracy in a clinical diagnosis. Were it not for the blood in the urine the symptoms would have justified a diagnosis of appendicitis.

CASE 8.—A twenty-month female who had been sickly and delicate since birth, had been under medical treatment for one month because of pyuria. I saw her on April 18, 1927, because two days prior, while sitting upon a rocking horse, she tumbled off on her right side, and since that time she had been exquisitely tender over this loin. Temperature was 103 to 105 degrees. She vomited continually. Urinated every fifteen to thirty minutes, the act provoking great distress; urine had a foul odor, contained white blood cells, too numerous to count, and many red blood cells. No mass could be felt in the loin.

Urologic examination revealed on the right side a tight ureteral obstruction about one and a half inches outside of the bladder. The impediment was gradually dilated with a ureteral bougie, and a No. 7 French catheter was introduced into the kidney. Phthalein appeared in five minutes, 10 per cent in thirty minutes, and a pyelogram made by slowly injecting five cubic



Fig. 14 (Case 8).—A subcapsular rupture through the upper calyx of an infected kidney of a twenty-month infant, following a fall from a rocking-horse.

centimeters of sodium iodid (Fig. 14) showed a rupture of the kidney with a collection of the sodium iodid beneath the capsule near the upper pole. At present the urine is uninfected and the phthalein is normal.

Comment.—Dilatation of the ureteral stricture for drainage followed by irrigation of pyelographic media, and rest in bed resulted in a cure of not only a subcapsular rupture, but also the preëxisting intractable pyuria.

CASE 9.—A 31-year-old male had complained of a dull, dragging pain in the right loin for about two years. He fell and broke his back in May 1925. Shortly after a successful bone transplant he developed a persistent fever, with chills, sweats, headaches, and loss of appetite.

The x-ray showed the presence of a pyramidal stone in the pelvis of the right kidney. The base of the stone was more or less rounded, occupying a lateral position, the apex being medially directed. There were two or three small spicules coming off the larger stone, which apparently filled most of the pelvis. These spicules radiated toward the calices. Cystoscopically the left side was normal. Right side infected, trace of phthalein in thirty minutes. No pyelogram was done because the stone almost filled the pelvis.

At operation, August 3, 1925, the small, sharp tip of the stone was found to have perforated the anterior wall of the pelvis and there existed a small pocket filled with pus and urine well walled off from the surrounding tissue, but communicating with the pelvis by the minutest of openings. The keen edge had, apparently, thinned the pelvis to the point of breaking. The process, however, must have been a slow seepage, since it was so completely taken care of by nature, and hemmed in against dissemination.

The stone was removed quite easily through the pelvis. The cul-de-sac about the pelvis drained and the patient made an uneventful recovery except for prolonged urinary drainage lasting three weeks.

Comment.—This case illustrates the point that a stone may erode through the pelvis. The accident the patient suffered may not have been an exciting factor, although I think it was.

CASE 10.—A 47-year-old male was pinned between the steering wheel and the door of his auto when the latter somersaulted down a thirty-foot levee. He was hospitalized for observation on account of shock and three broken ribs on the left side. I saw him, because of suspected kidney rupture, about twelve hours later at the Rideout Hospital, Marysville.

He presented the following: blood and clots in the urine; rapidly increasing shock; accelerated and shallow respirations; feeble running pulse, 132 to 144; constant vomiting; and extreme thirst. His hemoglobin was 30 per cent. Exquisite pain existed over the left costovertebral angle, but no mass. Abdomen was soft, with considerable tympanitis and some shifting dullness in the flanks. Every body movement provoked great pain.

His extreme condition precluded accurate diagnosis other than to establish the fact that the blood came entirely from the left kidney. Provisional diagnosis of intraperitoneal kidney rupture was made. He never reacted from the shock. Autopsy showed a rupture of the kidney on the anterior and upper surface (Figs.



Fig 15 (Case 10).—Showing laceration on ventral surface of the kidney with hemorrhage intraperitoneally.



Fig. 16 (Case 10).—Hemostat through laceration into kidney pelvis. The latter in direct communication with peritoneum via laceration.

15 and 16). There was also a large torn mesenteric vessel just in front of the kidney. The pelvis of the kidney communicated directly with the peritoneal cavity via the rupture.

Comment.—This is the rarer type of kidney rupture as to location, accompanied by intraperitoneal bleeding, illustrating the attendant profound shock.

CONCLUSIONS

1. Traumatic rupture of the kidney is more frequent than the spontaneous variety and is invited by existent renal pathology.

2. Rupture may be divided arbitrarily into two groups: (a) Mild or subcapsular. (b) Complicated or transcapsular.

3. Trauma to the loin is frequently provocative of subcapsular laceration. This is usually benign, clinically, but may be confused with intraperitoneal lesions.

4. Transcapsular rupture begets both hemorrhage and urinary extravasation.

5. Hemorrhage following rupture of the kidney is seldom lethal and rarely dangerous.

6. Extravasation of urine denotes injury to the renal pelvis or through a calyx, and necessitates prompt action.

7. The symptoms are diversified, but the most constant is hematuria. Either concurrent injuries or evidence of peritoneal irritation are prone to cloud the picture.

8. A presumptive diagnosis may be made by analysis of the symptoms, but a comprehensive one is possible only with use of pyelograms or surgery.

9. Treatment, other than expectant observation in bed, calls for nice judgment between too great complacency and too great enthusiasm surgically.

10. If doubt exists, err on the radical side and investigate.

11. Nephrectomy is to be done only as a last resort.

12. Brilliant results recompense conservative effort.

13. The paper presents for study the following cases:

(a) Rupture of the kidney with the formation of a huge perirenal clot; nephrectomy; cure.

(b) Rupture of the kidney with a ragged line of continuity; extravasation of blood and urine; suture and pressure packing; cure.

(c) Rupture of the kidney through the lower calyx and pelvis, confused with a traumatic pneumonia and supposed empyema; late incision and drainage of infected extravasation; cure.

(d) Spontaneous rupture of a hydronephrotic sac; incision and drainage; cure.

(e) Rupture of a congenital abnormal kidney in a child eighteen months of age; incision and drainage; cure.

(f) Subcapsular kidney rupture, diagnosis confirmed by pyelogram in a boy of eight; palliative treatment; cure.

(g) Clinical course indicated laceration of the kidney, but early symptoms could have been easily confused with appendicitis.

(h) Subcapsular rupture of the kidney in a girl twenty months of age; dilatation of ureteral stricture; cure.

(i) Traumatic rupture of pelvis by sharp stone; pyelolithotomy and drainage; cure.

(j) Intraperitoneal rupture of the left kidney, followed by profound shock and death.

Medico-Dental Building.

DISCUSSION

MILEY B. WESSON, M. D. (490 Post Street, San Francisco).—Traumatic rupture of the kidney is not a rare condition. Practically every surgeon has seen one or two, a few have seen more, and in all about nine hundred cases have been reported in the literature, but in many of these the diagnosis is based on symptoms alone.

Doctor Beach's series is unique. Ten patients with traumatic rupture of the kidney have been seen in his private practice during the past five years. The diagnosis of only one of his cases was based on symptoms alone; the others were all proved by pyelograms or the operative findings. His treatment has been conservative, six patients being operated upon and only one nephrectomy done.

Primary nephrectomy should never be done except for a torn renal pedicle. Subcutaneous ruptures of the kidney heal without operation and with a function loss of 50 per cent, or less. By saving a ruptured kidney we preserve a useful organ, even though its function is somewhat impaired by the cicatricial bands strangulating some of the parenchymatous elements of the organ. Furthermore, in case of subsequent destruction of the uninjured kidney the impaired one is able to do all the work.

The one fatality in this series was a death from shock due to intraperitoneal renal hemorrhage. No surgery was attempted, as the operative treatment of rupture of the kidney is always secondary to the therapy of shock.

Hematuria is not an indication for operation, but is merely a signal, while the hematoma is the measure of the lesion. Hemorrhage within the capsule is generally stopped by the hematoma and requires no surgery. Very often the same is true of a tear through the capsule or pelvis and the hematoma or urinary extravasation will absorb, accompanied of course by an elevation of temperature. There is always the possibility of the extravasation becoming infected, resulting in a walled-off abscess or diffuse cellulitis that requires radical surgery. Pyelography in Doctor

Beach's hands has proved to be a harmless procedure and should be done immediately in every case of suspected kidney rupture. Then, if the integrity of the kidney capsule or pelvis has been impaired with resultant extravasation, the tear can be sutured, the wound drained, and the possibility of future nephrectomy because of infection obviated.

Of particular interest in this series of cases is the absence of allegations of pain in the healed kidneys. In the beginning of industrial compensation, practically all workmen who suffered from ruptured kidneys expected to be permanently pensioned because of their backaches, which either did not exist or, if present, were due to infections of the seminal vesicles and prostate. A kidney can be pinched or torn without any discomfort to the patient, but pulling on the ureter or overdistending it causes instant pain. Hence, if pyelograms show the kidney in the proper position and with no abnormal mobility so that kinks cannot occur, all possibility of "kidney pain" is instantly ruled out.

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LOUIS CLIVE JACOBS, M. D. (450 Sutter Street, San Francisco).—A perusal of Doctor Beach's thesis convinces us of the frequency of traumatic renal rupture.

However, there are various degrees of severity in renal injuries. Rupture of the kidney varies from the severe to the mild types. In the former there are present: shock, hemorrhage, hematoma, and urinary changes. In the latter there are few symptoms, practically no definite physical findings, and the patients recover without surgical intervention, with but a day or two of hospitalization. The mild type is more often referred to as contusion of the kidney. Inasmuch as every contusion of the kidney has at least a partial rupture, and in every rupture there is contusion, all these cases (for clinical classification) are considered as renal rupture.

The degree of injury is dependent upon the intensity of the traumatic force, the point of its application, and the resistance encountered.

The ureteral catheter and x-ray are valuable contributions by the urologist in substantiating the diagnosis and determining the character of the injury. A cystoscopy with ureteral catheterization and functional tests should be utilized wherever possible.

The passage of bloody urine is the most characteristic symptom of ruptured kidney. Blood occurs in over 90 per cent of cases. However, there may be an absence of blood cells in the urine; when merely the fatty or fibrous capsule is torn, without actual injury to the kidney parenchyma. On the other hand, in some cases, the only symptom directing attention to the kidney may be hematuria.

Very often blood is found in the urine when the kidney is not ruptured. In Doctor Beach's series, Case 7, the presence of red blood cells in the urine was the decisive factor in differentiation from an appendicitis.

However, very recently I examined a patient with numerous blood cells in the urine, with pain and rigidity over the right iliac fossa. On account of the localization of the muscular rigidity, the patient was operated upon for appendicitis. A pathological appendix was removed, which was followed by a disappearance of erythrocytes from the urine.

Of extreme diagnostic importance in renal rupture are the presence of muscular rigidity of the rectus on the affected side and a relatively increased resistance with marked tenderness below the costal arch.

To my mind, the treatment as formulated by Doctor Beach is ideal. Conservatism is the watchword. When bleeding is profuse, surgical intervention is indicated. An exploratory operation should be performed; but the operator must continually keep in mind that the extent and form of the surgery shall depend upon the amount of pathology present and the ease with which the bleeding can be arrested: by ligation, suture, or packs. Complete nephrectomy is often essential. When indicated, it should be carried out with rapidity.

Watson considers hemorrhage as the cause of death in eighty out of a total of 190 cases. Of the remaining, he attributes four deaths to septic complications, thirty-four to anuria, and eleven to shock.

Güterbock claims that in thirteen cases of nephrectomy performed on account of dangerous hemorrhage, only four died.

The mortality in septic cases can be directly traced to delayed operative procedure.

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DOCTOR BEACH (Closing).—It seems to me that a careful urological survey in these cases is essential to determine exactly the position, extent and degree of injury to the kidney.

After having made a diagnosis, the treatment must be adjusted to the circumstances.

To conserve whenever possible, is the parting thought I wish to leave with you.

PYOCYANIC ANGINA—WITH AGRANULOCYTOSIS*

REPORT OF CASES

By MADISON J. KEENEY, M. D.
Los Angeles

DISCUSSION by Fred Linthicum, M. D., Los Angeles;
John V. Barrow, M. D., Los Angeles; Ernest H. Falconer,
M. D., San Francisco.

THE title of this paper is possibly not scientifically accurate, but is used to call attention to some points of interest in a symptom complex about which much has been written in the past few years.

Schultz¹ of Berlin, in 1922, reported a group of cases in which the outstanding findings included a severe membranous or necrotic angina, with an unusual and distinctive blood picture and to which he gave the name "agranulocytic angina," or "agranulocytosis." Two cases of the type he described have come under my observation in the past few months. One of the case reports is here submitted.

REPORT OF CASE

Mrs. C., age forty-seven, married, housewife. First seen for present illness at her residence the evening of November 13, 1928, at which time she complained of a sore throat and general aching, which had developed that morning.

This patient had been under my observation at times for the preceding two years. In December, 1927 she was given a general physical examination because of a subacute arthritis. Nothing abnormal was found except several apical abscesses and extraction of offending teeth gave some relief. At this time the blood count showed a normal red blood picture with white blood cell count of 7000, with a normal differential, platelets plentiful, and a negative blood Wassermann.

On August 15, 1928, she appeared at my office complaining of symptoms referable to the lower bowel. Examination disclosed a small carcinoma of the rectum. Early in September she was operated upon for the carcinoma at a midwest clinic and returned to her home the first week in October in good general condition. Blood count made at the clinic showed red blood cells to be 4,700,000 and white blood cells to be 6000.

At the time of my first visit for the present illness, November 12, her symptoms were those common to

the beginning of many acute infections and examination showed a red, angry-looking throat with some swelling but no exudate or ulceration. Twenty-four hours later a patch of grayish membrane appeared on the right tonsil, with swelling and some edema of entire throat and slight enlargement of the cervical glands. Temperature was 103 degrees F., and pulse was 110. The patient was evidently seriously ill and complained particularly of the presence of large amounts of sticky, stringy mucus in her mouth. Cultures were made from the throat at this time and sent to the city health department laboratory and a positive report for diphtheria was returned.

Necrotic exudate soon appeared on the other tonsil, the throat became badly swollen and small deposits of exudate appeared on the gums. Cultures and smears were again made from the throat and sent to the city health department laboratory and also to a private laboratory, as it was not believed we were dealing with diphtheria, for my first impression was that the case was one of the so-called septic sore throats. Report from the city laboratory on second culture was again positive for diphtheria bacilli.

Report from the private laboratory was as follows:

"Gram stain of smear showed a few epithelial cells, numerous Gram-negative bacilli, a moderate number of fusiform bacilli, and a few spirilla. Loeffler's blood serum slant showed a growth of a Gram-negative bacillus which produced a greenish discoloration of the media. Smear of growth stained with Albert's stain showed numerous bipolar staining bacilli resembling diphtheria bacilli. Gram stain showed the organism to be Gram-negative bacillus. *Bacillus pyocyaneus*."

A blood count made at this time showed a total white count of 200 cells, all of which were lymphocytes, approximately 4,000,000 red cells, and platelets plentiful. There was no tendency to bleeding from any mucous membrane, no petechia or other eruption. Spleen and liver were not definitely enlarged and there was no swelling of glands other than the cervicals. On the third day of the illness she developed a definite jaundice, and urine showed heavy bile as well as albumin and numerous casts. Early in the fourth day of the illness, signs of rapidly failing heart appeared, with cyanosis and râles in both bases. The patient died that afternoon. A postmortem was not permitted.

COMMENT

This is a somewhat incomplete report of a typical case of agranulocytic angina, occurring in a middle-aged woman. Schultz and his associates believe this condition to be a definite clinical entity. In a paper in 1925 Schultz, Wiener, and Jacobwitz² reviewed twenty cases which had been reported up to that time and outlined the characteristic findings as follows:

"The disease attacks both sexes and all ages, but most of the typical cases have been in middle-aged women in whom there was no evidence of abnormality or lowered resistance. Onset sudden, with high fever, toxemia and prostration; the duration of the disease very short and the death rate extremely high. Membranous and necrotic inflammations of the throat, especially the tonsils, were present, and in some of the severe cases there were ulcerations of the mucous membranes of the mouth, rectum, and genitals. Normal bleeding time and clot behavior, with absence of hemorrhagic diathesis, were characteristic findings. Clinically there was slight, if any, enlargement of spleen and liver, no general enlargement of lymph glands, and jaundice was present in more than half the cases.

"The blood findings were striking—a high-grade leukopenia—a total white count usually below 1000, often only a few hundred, and granulocytes extremely low or entirely absent. The few white cells remaining were practically all lymphocytes without the presence

* Read before the General Medicine Section of the California Medical Association at the fifty-eighth annual session at Coronado, May 6-9, 1929.

of immature cells, and there was little change in the red cell or platelet picture."

Bacteriologic findings from cases reported have not been uniform or convincing—a variety of organisms having been cultured from the throat and blood, blood cultures usually giving no growth. There has been no evidence of any contagious or epidemic element.

Postmortem findings show a bone marrow extremely poor in granular elements, with little damage to red cell and platelet structure and no evidence of leukemic metaplasia. Sections of lymph glands, liver, and spleen show the changes common to many infectious diseases and are not suggestive of leukemia, and the spleen is not the typical septic organ. In the tissue surrounding the local lesions of the mucous membranes there is a striking absence of the usual cellular infiltration.

From findings such as the above, Schultz and a number of more recent writers believe this to be a definite disease, either with primary localization in the throat and a virulent toxemia which destroys the white cells of the blood and attacks the bone marrow, or a general infection, with a secondary necrosis of mucous membranes.

DIVERGENT OPINIONS FROM THE LITERATURE

Many case reports and extensive reviews on recorded cases have appeared in the past few years. Study of a large number of these shows a marked difference of opinion as to whether or not this should be classed as a definite disease and also convinces one that many of the cases reported as agranulocytosis do not belong in that classification, but are instances of other conditions associated with a leukopenia and a relative lymphocytosis.

Some believe the disease has a background of a blood or bone marrow dyscrasia and that the agranulocytic angina is a terminal condition. Against this view is the fact that a number of the cases have occurred in persons known to be otherwise normal and in the few cases that have recovered the blood picture has returned to normal.

Leon believes the cases belong to the leukemias, but the autopsy findings have shown this to be erroneous. A number of writers who state the condition is not a clinical entity believe it is an atypical sepsis and should be classified with the septicemias.

Marchand,³ Turk,⁴ and others have described cases of sepsis with granulocytic leukopenia and relative lymphocytosis accompanied by necrosis of the mucous membrane of the mouth. These patients, however, showed the hemorrhagic diathesis with thrombopenia and a secondary anemia. In most of them the focus of infection and abscesses were found, the blood culture was positive, and autopsy disclosed a septic spleen.

DIFFERENTIAL DIAGNOSIS

Freer⁵ states that septicemias are seen with marked leukopenia and ulceration of mucous membranes, without anemia, hemorrhagic diathe-

sis, or evident focus of infection and with negative blood cultures. He believes so-called agranulocytosis belongs with them and should be called sepsis agranulocytotica. Cases such as he describes would certainly be hard to differentiate from agranulocytosis, but one wonders in which classification they belong.

Clinically acute leukemia in the aleukemic stage may resemble agranulocytosis very closely, but the hemorrhagic diathesis, anemia, pallor, and other changes which are present in leukemia should serve to make the diagnosis; and in most cases the blood smear is sufficient.

Aplastic anemias in the terminal stage may simulate the condition, but the blood picture, symptoms and history will usually differentiate, and typical acute cases of agranulocytosis certainly are not terminal infections.

Diphtheria of the malignant type resembles it very closely, except for the blood findings, and has been the original diagnosis in many of the cases. Errors of diagnosis from the throat cultures have been made many times and blood counts should be made in all acute throat infections.

The throat lesions of Vincent's angina resemble those of agranulocytosis, but the lack of severe general symptoms, the blood examination, and throat smears will make the diagnosis, although mild leukopenia has been observed with Vincent's.

Infectious mononucleosis (glandular fever) has some things in common, but the blood picture is different and the course of the disease favorable. Infectious mononucleosis because of the lymphocytosis is more likely to be confused with acute lymphatic leukemia, and observation for a period of time may be required to make the differential diagnosis.

Marked leukopenia (granulocytic) with relative lymphocytosis occurs in arsenic and benzol poisoning; at times following administration of arsphenamin, occasionally after x-ray treatment, and in Banti's disease. Moderate leukopenia with relative lymphocytosis has been noted in a number of diseases, among them typhoid, influenza, certain cases of tuberculosis, intestinal parasitism, and often in the readjustment of the blood following leukocytosis in various acute infections.

The bacteriology of agranulocytosis is not solved. Cultures from the throat have shown all the pyogenic cocci, pneumococci, *Bacillus pyocyaneus*, and others. Blood cultures have been unsuccessful in most of the cases and the positive ones have shown streptococci and staphylococci, *Bacillus pyocyaneus* and *Bacillus coli*.

The *Bacillus pyocyaneus* has been cultured from the throat from several of the cases and from the blood in two or three patients. Lovett,⁶ in 1924, cultured the *Bacillus pyocyaneus* from the tissues of a patient after death and produced a similar blood picture in guinea-pigs by injections of cultures of the organisms into the peritoneal cavity. That the *Bacillus pyocyaneus* is a pathogenic organism of more importance than was formerly believed there can be no doubt, but that it is the

causative agent in this disease is still unproved. Degenerated forms of the *Bacillus pyocyaneus* may be mistaken for the diphtheria bacillus, but are readily differentiated, the *Bacillus pyocyaneus* being Gram-negative.

Dr. F. Linthicum of Los Angeles, who was of definite assistance in the diagnosis of the case here reported, has had some interesting experiences with this disease and has noted a possible association with the *Bacillus pyocyaneus*.

SUMMARY

A case of agranulocytic angina is reported in which a laboratory diagnosis of diphtheria was made from the throat cultures. Further study proved the organisms in the cultures to be the *Bacillus pyocyaneus* and the blood picture typical of agranulocytosis.

The symptomatology and pathological findings in agranulocytosis are fairly constant, but the etiology is obscure.

The typical acute cases suggest a specific infection localized in the throat or mouth, causing a membranous and necrotic inflammation, with the production of a virulent toxin which destroys the leukocytes of the blood and bone marrow.

The organism or organisms responsible for the condition have not been identified. In the case here reported, as well as several others, the *Bacillus pyocyaneus* was obtained in the culture, but it is not claimed that it has been shown to be the offending organism.

Evidence at present is possibly still too insufficient to classify the symptom complex as a definite clinical entity, but the cases have a very strong family resemblance and the clinical picture of the acute cases is a definite one.

For purposes of study it seems advisable to classify the syndrome as a definite clinical entity, agranulocytic angina.

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DISCUSSION

FRED LINTHICUM, M. D. (901 Pacific Mutual Building, Los Angeles).—One point in Doctor Keeney's paper I do not think has been sufficiently stressed, and that is the odium to which a physician exposes himself who has under his care a case of ulcerated sore throat and accepts from a public laboratory the routine identification of the diphtheria bacillus. It was my misfortune two years ago to encounter just such an incident as Doctor Keeney has described—a

case of pyocyanic angina. Prior to this time there had been two similar cases in Germany and one in this country, the latter described by Lovett in 1924. Briefly, we were called in consultation on a woman who had a sore throat. There was a small, grayish patch on the right tonsil. Her temperature was not alarming. During the following week the condition progressed until her entire buccal cavity was lined with a thick gray membrane, with fibrinous bands extending from the gums to the inner aspects of the cheek. She died on the eleventh day of her illness apparently of cardiac failure. Autopsy was of little or no help in establishing a diagnosis. Numerous consultants had been called and on the evidence of a moderate number of fusiform bacilli and spirochetes a diagnosis of Vincent's angina was accepted as the cause of death.

Near the terminal stages a piece of the membrane had been sent for examination. This had been preserved. A postmortem examination of this membrane revealed the presence of numerous bipolar staining organisms, which were identified as the Klebs-Loeffler organism. We thus assumed the responsibility of having allowed a patient to die of diphtheria unrecognized and untreated. Fortunately another examination was made and the bipolar organism was found to be Gram-negative instead of Gram-positive. Further delving revealed a picture of agranulocytic angina associated with the *Bacillus pyocyaneus*, which organism is not only Gram-negative but is actively motile in the suspended drop. The organism from this case was isolated—injected into a series of guinea-pigs, and it was found that until it became attenuated it had the power to reproduce in experimental animals a blood picture similar to that which you have just heard described. In animal No. 7 a half agar slant of the growth was introduced subcutaneously and it was found that at the end of twenty-seven hours the polymorphonuclears had dropped to six per cent; the lymphocytes had risen to 94 per cent. The animal died, and at postmortem the organism was recovered in pure culture from the throat. The *B. coli communis* was found to produce the same blood picture with the exception that it was not quite so virulent.

To date, Doctor Keeney's patient is the sixth recorded instance in which this disease has been associated with the *Bacillus pyocyaneus*. It is probably not the primary etiological factor in the picture. It is always a possibility. Given a case of ulcerative pharyngitis or stomatitis in which the prognosis becomes grave, one should always endeavor to protect himself by insisting upon an accurate differentiation between the *Bacillus pyocyaneus* and the Klebs-Loeffler bacillus.

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JOHN V. BARROW, M. D. (1930 Wilshire Boulevard, Los Angeles).—We are indebted to Doctor Keeney for his careful review of the history of this syndrome. He has brought down to date the symptomatology, pathology, etiology, and the treatment of this comparatively new, rare, and fatal malady.

I have had the misfortune to see five cases in the last two or three years. Each of them has had symptoms referable to an acute sepsis superimposed on some depleting chronic condition. Cultures from the blood of these patients have been variable. A staphylococcus in one and a streptococcus in a second have been present in the blood, but we could not prove that this was the causative organism. The blood picture in most of these has shown a tendency to a lowered leukocyte count well within the range of five to seven thousand. The red cell count did not seem to be disturbed beyond the ordinary clinical manifestation of the case. There seemed to be a distinct inception of the disease, as shown by its symptomatology of throat pain and nasal distress. Three of these cases had almost putrid throats, similar to Vincent's angina or streptococcus.

The decrease in the number of the granulocytes is spectacular. It does not seem to be connected with the chronic level of a leukopenia. The latest case to come under my observation had two attacks with an interval of nearly two months between. At the beginning of the second attack the granulocytes had returned to between four and five thousand and remained up to three thousand until the day after the symptoms seemed acute, at which time they dropped suddenly to eight hundred, two hundred, and then disappeared. This patient had all the treatment, including x-ray treatment, leukocytic extract, and every other remedial agent calculated to be a benefit in such conditions. Nothing was accomplished by treatment except the comfort of the patient.

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ERNEST H. FALCONER, M. D. (384 Post Street, San Francisco).—The pathology and possible etiological agents have been well discussed by the author, but a few remarks about therapeutic procedures might be of interest.

In cases where the question of diphtheria is in the foreground and while awaiting a blood count and bacteriological confirmation, it is permissible to give diphtheria antitoxin if there is no reason to suspect sensitization. This antitoxin has been used therapeutically, and cases so treated have been reported. Also some improvement has apparently occurred after the use of large transfusions. These transfusions may be preceded by acroflavin intravenously. Considerable interest attaches to the use of leukocytic extract, in large doses, as this should be of value on theoretical grounds. I have seen one case where this material has been used over a considerable period of time. This woman is still alive after more than one year and during this period she has passed through one serious relapse. Polyvalent antistreptococcus serum has been used and also x-ray application over the spleen and long bones.

It is of particular interest and of value from the prognostic standpoint to know that there are cases with apparent recovery followed by one or several relapses. Also that there are certain cases of a more chronic type that live for from three to six months to end with a terminal picture of marrow aplasia similar to aplastic anemia.

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DOCTOR KEENEY (Closing).—The results of treatment in agranulocytosis have not been encouraging. In the case here reported diphtheria antitoxin was given—somewhat as a protective procedure, the residence having been promptly quarantined for diphtheria following the first culture report.

Diphtheria antitoxin has been administered in many of the cases—usually early—before the condition was recognized.

There have been published reports of recovery of a few typical acute cases and a number of subacute and atypical ones.

Blood transfusion, x-ray of long bones, leukocytic extract, intravenous injection of acridin dyes and of guanidin hydrochlorid have been tried. Of these, stimulating irradiation of long bones has been credited with several recoveries.

Dr. H. Zeiler, as consulting pathologist, has had contact with most of the patients seen in Los Angeles—some twenty in all. Of these only two are living and there is some question of the diagnosis in one of the two. X-ray of long bones was used in the proved case which recovered, but was employed in a number of others without benefit. Blood transfusions were given to more than half of the twenty cases, leukocytic extract to three, guanidin hydrochlorid to four, and combinations of above procedures to many of them.

The death rate in typical acute cases under all methods of treatment is very high, probably above 90 per cent.

THE BUSINESS OF MEDICINE*

By REXWALD BROWN, M. D.

Santa Barbara

LONG before the era of Christianity the medical profession hitched its destinies to a code of procedure which has retarded its thought. The Hippocratic code, a superb guide for moral conduct between physician and patient, has created an attitude of mind generally accepted by the profession and by the public through a period of many centuries.

This unquestioned attitude is that the relationship between a doctor and a sick person is distinctly individual and has only a remote or indirect bearing on society. In this spirit medicine has pursued its course under a mantle of tradition. Beneath the mantle there has grown a structure of insularism, detachment from movements in other spheres of human endeavor, reticences, customs, regulations and misinterpretations of the code.

Civilization is not static. New combinations and new relationships push hard on the heels of the old. Mental alignments held unbreakable are pushed asunder by a public demanding answers to fair questions. Organized medicine is being challenged to justify its economic position in the body politic. And who is there to answer the question?

What effort has medicine made to fit its program, if it has any, into the programs of other social forces? Did Hippocrates intend his code to be a document governing the activities of the medical profession for all time?

INDIVIDUALISTIC ECONOMICS CHAOTIC CONFUSION

Does medicine believe that its system of individualistic economics is other than chaotic confusion? Are today's medical economics satisfactory to medicine and to society? If so, why are there so many heated, perplexing, endless and inconclusive discussions within and without the profession and arguments pro and con about physicians' and surgeons' fees, hospital costs, nursing expenses, charity care, contract practice, social insurance, dispensary development and abuse, et cetera?

The facts are that unless medicine revises its educational structure and teaches those subjects which will enable medicine to make adjustment with the whole modern economic scheme the profession will, as a class, be subject to lay domination. The position of many medical men in big industry is already that of subordination.

Medicine's real purpose should be the building of a statesmanlike leadership toward mankind's full comprehension of the dependence of social progress on individual and national health.

* Read before the General Medicine Section of the California Medical Association at the fifty-ninth annual session, Del Monte, April 28 to May 1, 1930.

* Ed. Note: This article by Doctor Brown of Santa Barbara, and the reports by Doctor Graves of San Francisco and Doctor Ruddock of Los Angeles, which are printed in this issue, were presented at the recent annual session of the California Medical Association at Del Monte. The papers deal with matters of vital importance to the medical profession and should be of special interest to those readers who have been following the discussions on these subjects in lay and medical publications.

One of the outgrowths of the Hippocratic idea is medical altruism. Mankind credits the medical profession, as it credits the clergy, with the possession of higher spiritual attributes than other callings. (The present intense feelings about the cost of medical care have probably greatly modified this opinion.) This has led to a conviction that physicians have no adequate concepts of business matters and that it is not wise to entrust them with control and expenditure of money in the advancement of projects intimately concerned with the welfare of society and of medicine.

PHYSICIANS NOT A CLASS APART

Does medical altruism mean that physicians should be indifferent to fundamental truths of economics as they exist in the social fabric? Physicians are not and should not be a class apart from other people. They are enmeshed in the economic exactions of life and should be conceded in all fairness the right to make from their efforts in behalf of individuals and of society a living commensurate with livings secured in other vocations.

Scientific medicine is derelict in not establishing an economic bureau in its organization. Business, finance, industry, education and religion are continuously adjusting their activities to the shifting phases of economic existence. Large personnel carry on such work.

Medicine must create within its own ranks a system which the present day type of individualistic practice and opinion does not possess. There is a business in medicine which the profession has not recognized.

This business is the distribution of all medical knowledge at costs which can be met without burden by all classes, or at costs which society should pay. To the development of this business all physicians must contribute. In a constructive way cohesive organization in medicine does not really exist. We are proud of our medical associations. They are interested largely, however, in keeping members conversant with advances made in clinical and research fields. The associations exist for mutual improvement.

A sound economic status in civilization is medicine's immediate problem. There must be found a way by which society and the healing science will coordinate their activities without detriment to either one.

ORGANIZED EFFORT ROAD TO PROGRESS

Organized effort is the road to progress in this period of the world's growth. The awakening of medicine to this mental concept, a drastic break almost impossible of acceptance by many doctors, steeped in the traditions of individual relationships, should readily follow the creation of a medical economic bureau.

Of what permanent value will be the economic fact findings which are to emanate from the Committee on the Cost of Medical Care? This admirable committee under the direction of the broad calibred thinker, Dr. Ray Lyman Wilbur, is very busy. Five years will elapse before the report is made. Who is to receive the report

and who is to continue the surveys and analyses in an evolving civilization? Who is to formulate the financial policies to which the aggregate profession is likely to subscribe and to follow?

ECONOMIC BUREAU OF NON-PRACTICING PHYSICIANS

The medical economic bureau should be composed of non-practicing physicians. What folly to assume there are no physicians possessing judicial temperaments and capable of understanding the broad scope of general economics! There are physicians who would be glad to be freed from the exacting grind of routine practice to devote their energies to the promotion of a fair medical economic status approved of by society.

There are hundreds of meetings of county, state, special and national medical societies throughout the year. The time is consumed almost entirely by discussions of scientific data. Very seldom is there discussion of vital subjects in relation to practice of medicine. Physicians talk about these matters to each other outside the meetings. Is medicine bereft of ability to make decisions en masse on politico- and socio-medical participations as it has ability to make mass decisions on the proper management of appendicitis, typhoid fever and toxic goiter?

A profoundly different social order has grown into being while a nonunified medical profession has carried on in an ancient way without recognition of the change. Medicine is confused in a world insistent on adjustments. It must turn quickly to the development of a machinery which shall hasten understanding of the leading position of medical science in the march of society to higher levels.

The rank and file of physicians waits upon the American Medical Association to take the first steps toward this end. Economic, organization and administrative departments with trained executive personnel are necessary to manage and conduct the enlarging activities of the medical profession. Is there reason to believe that men of medicine have no capacity for initiative thought in organization affairs and have no ability to become administrators in medical development programs?

REVISION OF MEDICAL EDUCATION

The system of medical education must be revised. Certain students versed in the fundamentals of medical knowledge and conversant with the profession's high aims will manifest inclinations toward medical administrative careers. Their desires should be fostered in postgraduate schools of administration. Graduates from these schools will surely be able to assume those medical administrative functions now illogically entrusted to lay people, to nurses and to social workers.

One phase of medical experience about which the public is greatly exercised is the expense of service in hospitals. The workshops of physicians, with isolated exceptions, have in control and direction been almost entirely divorced from the medical profession. Hospital policies have become pet projects of lay philanthropists and

politicians. No one questions that philanthropists are actuated by the highest forms of benevolent thought. Many politicians, too, have high motives, but the petty play of politics often hinders their efforts.

The training of philanthropists and politicians has not likely been such as to qualify them to guide the destinies of hospitals. Hospital needs and growth consistent with modern medical knowledge is best appreciated by medical men. The management of hospitals is one outstanding field for medical administration.

There is a definite drift toward the endowment of hospitals by wealthy individuals. The desirability of this form of munificence reaches deeply into the heart of medical economics and should be given careful study. If with the gift of great moneys there is associated on the part of the givers an effort to control the expenditures, for instance, to insist on closed hospital staffs, the ultimate results might be inimical to medicine's ability to express itself as a unit in society's evolution.

ADVANCEMENT OF SPECIFIC PROGRAMS

If medicine is able to advance specific programs, as educators have in their spheres, regarding the necessity for and worth of endowment funds in the promotion of health, men of wealth should find it easy to contribute of their excess means to these programs. They would gladly permit the expenditures to be directed by medicine and medicine in turn would be happy to render strict business accountings for the moneys entrusted to its use. Along such lines philanthropy and medicine can be powerful partners in the moulding of society's future.

The sick who enter hospitals are divided roughly into three classes: the indigent, those of means, and those of limited means. Almost all hospitals permit the reception of patients from all three classes. This creates many economic and psychic difficulties which are by no means ironed out. The matter of hospital expense to the wealthy is not of much moment, as wealth is always able to pay for the surroundings and the care it demands. There would be no economic problem for the profession if all people were wealthy.

ECONOMIC POSITION IN CHARITY RELATIONSHIPS

The free service by the medical profession to the indigent sick in all hospitals and in the dispensary clinics attached thereto has raised the cost of medical services to the self-respecting individuals in moderate circumstances who are too proud to accept charity when they are ill. The profession has no economic position at all in its charity relationships. It permits itself to be exploited by society in its efforts to demonstrate its self-built philanthropic but obviously un-economic spirit.

Deep undetermined causes are responsible for the indigent sick. The medical profession has not brought their afflictions upon them; yet it feels a deep desire to, and does render them, the professional attentions to which any human is en-

titled. Society does little for the indigent sick except to give housing and food in hospitals and exact of doctors their medical care. Doctors fight for the privilege of caring for them. Positions are sought on city and county hospital staffs as they are assumed to give prestige and opportunities for acquisition of knowledge which will later be financially valuable in private practice.

All efforts, particularly political, are made to hold the staff appointments. It is known that scores of physicians seek the shoes of a member dismissed or resigned. The picture is a sad one. Does any other class consider it of sound economic value to society to work gratuitously for the indigent sick? Do architects and contractors build their hospitals, do grocers supply them food and clothiers give them garments without compensation? Do hospital superintendents, nurses, technicians, welfare workers and lay help in charity hospitals donate their services?

The medical profession, the most important factor in the whole program of the care of the indigent sick and without whose knowledge and service the entire structure would fall, goes on blindly. This is a medical economic weakness which until corrected makes impossible the building of a general economic basis compatible with the sound securities found essential in the development of activities in other fields of human endeavor.

Physicians should be rendered fair financial returns for their mass charitable services. When society and medicine appreciate this truth, great changes in the conduct of charity hospitals will occur leading to financial savings even though physicians are paid. The tremendous abuses of medical charity could be controlled. Social reformers and welfare workers certainly play a large part in assisting people who could pay small fees for medical attention to become wards of the tax paying community. Whether or not payment to doctors by society is an approach to state medicine is debatable. Surely if medicine judges remuneration fair in a sound economic system, it would not be state medicine which carried to logical conclusion, means the employment of physicians on terms dictated by lay people.

The record of the medical profession in the understanding of the white collar class medical problem and helpfulness in its solution is relatively negligible. Unquestionably the matter is a baffling one. There are a number of experimental efforts being made by a few socially minded doctors, hospitals and foundations to meet the needs. They have not gone far nor is it known that their efforts are in the right direction.

A solution worked out in this economic field will be one of the highest services which medical science can render to society. For this purpose, if for no other, must physicians create an economic bureau. This is business of medicine. It is a responsibility and a duty. A group consciousness to promote real altruism with its foundation in sound economics is a goal which can weather criticism.

Santa Barbara Clinic.

THE LURE OF MEDICAL HISTORY

SIXTEENTH CENTURY GERMAN MEDICINE*

ARTZNEYBUCH OF HOFMEDICUS GÄBELTHOUER

PART I

By S. L. MILLARD ROSENBERG, Ph.D.

Los Angeles

IN the year 1596, from the press of Georgen at Tübingen (an old university town of Württemberg) there was published, at Gruppenbach, the *Artzneybuch* (Book of Medicines) compiled by Oswaldt Gäbelthouer, the Hofmedicus (court physician) of the Duke of Württemberg and Theck. The elaborate and illuminated title states that the work contains "remedies for practically all the ills of the human body." Some of the prescriptions, chosen almost at random from dozens of similar ones, are given below, so that the reader may gather some faint notion of the state of medicine as practiced at a ducal court three hundred—only three hundred—years ago, shortly

* During the last summer, Professor S. L. Millard Rosenberg of the University of California at Los Angeles spent some time in Germany and there purchased several interesting volumes for the editor of California and Western Medicine. One of these is the copy of Oswaldt Gäbelthouer's "Artzneybuch," which was printed in the year 1596. This book is made the subject of this sketch. The book was written in sixteenth century German and presented many difficulties in translation. In the light of modern scientific medicine many of the prescriptions of three hundred and fifty years ago which are given in its pages are more than absurd, although here and there is found something no worse than some popular lay remedies of the present day. Some of the prescriptions also show how tenacious are the traditions of folklore medicine, since in modified form the basic ingredients are still used among certain modern peoples. This work of Gäbelthouer, who in one place in the text states he has used a certain prescription for forty-nine years, also shows to what a low state of empiricism the practice of the healing art had fallen in the sixteenth century. Brackets are used after some of the prescriptions to indicate comments by Professor Rosenberg, to whom the editor is much indebted for these translations, which are as literal as possible, and which even though they give somewhat of a shock to present-day readers, are not without value since they provide a comparison between sixteenth and twentieth century medicine. In connection with this sketch by Professor Rosenberg, the attention of readers of California and Western Medicine who are interested in the history of medicine is called to the recent book "Devils, Drugs and Doctors" by Howard W. Haggard, M. D., of Yale University, and which contains a fascinating portrayal of the development of medicine, worthy of perusal by all members of the medical profession.—G. H. K.

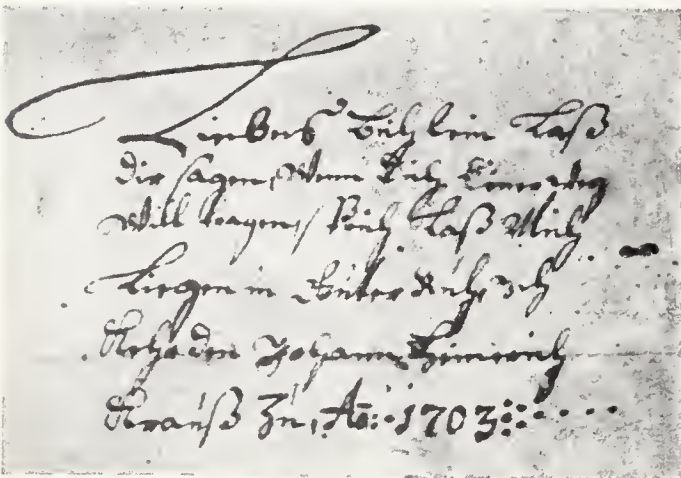


Fig. 2.—Inscription on Fly Leaf. Translation follows:
Give heed, dear Book, and let me say:
If one should carry you away,
Cry out: "Let Be! And get out of this house!
For I belong to Johann Heinrich Strauss."
A. D. 1703.

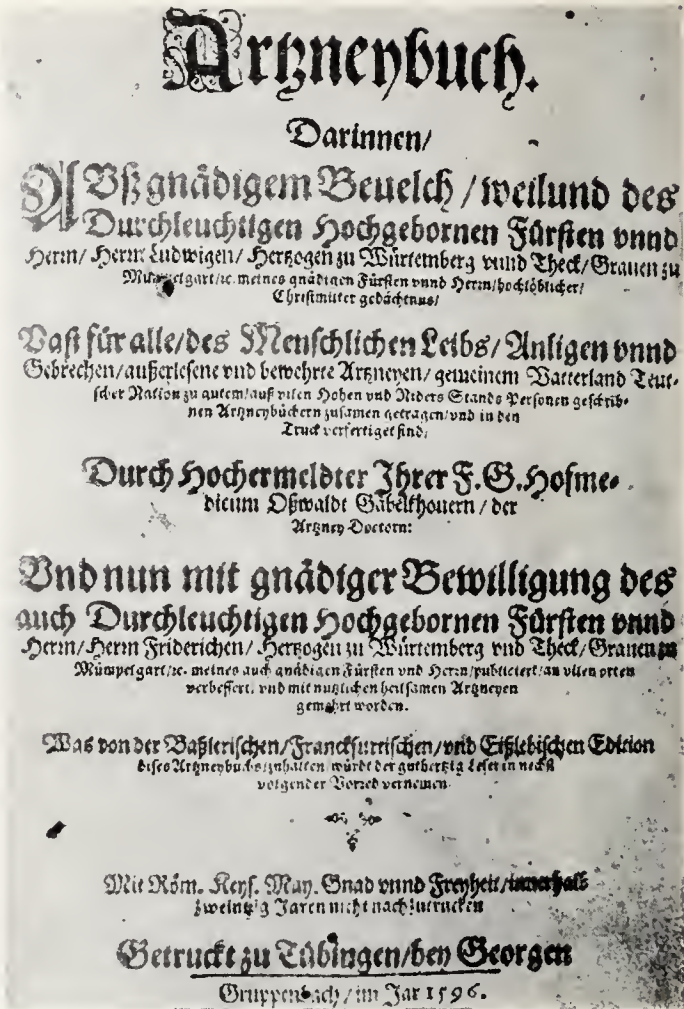


Fig. 1.—Title Page. Translation follows:
BOOK OF MEDICINE WHEREIN
at the gracious command of His Highness our most praiseworthy erstwhile Lord and Master Ludwig, late Duke of Württemberg and Theck, Count of Mümpelgart, etc., and to commemorate his Right Honorable name have been collected
choice and proved medicines for the cure of almost all human ailments and infirmities, for the good of our Fatherland, the German Nation, of every person of high and low degree. Compiled from sundry medicine books prepared for the printer,
by the illustriously appointed Court Physician
Oswaldt Gäbelthouer, doctor of medicine,
and now set forth
with the additional gracious permission of His Highness our present Master and Sovereign, Friderich, Duke of Württemberg and Theck, Count of Mümpelgart, etc.
And published in a new, amended and enlarged edition with new, useful and curative prescriptions.
What consideration to give to the editions of Basel, Frankfurt, and Eisleben the kindly reader will see fully set forth in the Preface of the present work.
By Roman Imperial Grant.
Unsanctioned printing of the within book is hereby prohibited for the period of twenty years, at the peril of forfeiture of grace and freedom.
Printed by Georg at Tübingen
Gruppenbach
1596
before Harvey's discovery and about equally subsequent to Vesalius, Fallopius, the French surgeon Paré, and other pioneers of modern medicine.
Before outlining the work itself, a few words about the copy from which excerpts are made for this article. It is worm-eaten and minus one of the clasps. There are several inscriptions on the fly-leaves, and every indication that the book was much used and was not an antique in its time, but quite up to date in that corner of Europe—more's the wonder when we read it. The German of it is not easy reading for a

modern unless familiar with the dialect peculiarities of sixteenth century Württemberg.

But one of the inscriptions is in modern German; it is in ink in German script, on the second front fly-leaf :

Liebes Büchlein lass Dir sagen,
Wenn Dich einer weg will tragen,
Sprich: Lass mich liegen in guter Ruh,
Ich folge dem Johann Heinrich Strauss zu.

Anno 1703.

Which means something like this:

Give heed, dear Book, and let me say:
If one should carry you away,
Cry out: "Let be! and get out of this house!
For I belong to Johann Heinrich Strauss."

Anno 1703.

Register vber den

Ersten Theil.

I.

Von allerley anltzen des Hauptz/
vnd Hals.

Auptwehe.

Hauptflüß.

Schwindel.

Fallende Euche.

Schlag.

Melancholen.

Vnsinnigkeit.

Überigs wachen.

Schlaffsucht.

Zuder Gedächtnus

Erbgrind.

Augenarzen.

Anligen der Augbrauen.

Ohrenarzen.

Nasenschweissen.

Zanwehe.

Wund vnd Halowehe.

Bräunin.

Päpfflinfallen.

Haifere.

Kröpff zuuerreiben.

fol.

13

21

27. 418

45

61

66

71

74

74

79

85

113

114

122

126

142

156

160

162

163

II.

Von den Kranckheiten des Herßens/
vnd der Brust.

Erstkranckheiten

Ohnmachten.

165

169

Enden

Fig. 3.—A page from the Table of Contents. Translation follows:

REGISTER OF THE FIRST PART

I

OF EVERY KIND OF AILMENT OF THE HEAD
AND NECK

Pains of the head.....

Rheum [catarrh] of the head.....

Dizziness.....

Falling sickness [epilepsy].....

Apoplexy.....

Melancholy.....

Insanity.....

Insomnia.....

Somnolency [stupor].....

Failure of memory.....

Scald-head.....

Eye medicaments.....

Eyebrow ailments.....

Ear medicaments.....

Discharges from the nose.....

Toothache.....

Teeth and throat troubles.....

Quinsy.....

Ailments of the uvula.....

Hoarseness.....

Goitre remedies.....

Page

1

13

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27, 418

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114

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156

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162

163

II

OF MALADIES OF THE HEART AND CHEST

Heart troubles.....

Fainting spells.....

165

169

This same Strauss, two years before this doggerel, in 1701, wrote his name on one of the back fly-leaves, with elaborate embellishments of scrolls and flourishes. Below, in a different hand, and in the year of the doggerel, someone—who had not the courage to sign his sneer—wrote: “Wer das geschrieben hat, ist ein Schelm von Haus aus. Anno 1703.” That is to say: “The writer of this is a born rogue.” Perhaps, but he was not a secretive person, for he signed his name, and proudly added flourishes.

There are several earlier inscriptions, giving medical recipes of the type contained in the book, and applying particularly to sick dogs. One of them prescribed, for all canine ills, a cake of sour cheese, milk, and honey; this was guaranteed infallible, no matter what ailed the dog. George Meier is the name of this contributor, but the date is missing. One leaves this prescription for dogs (which is in script on one of the fly-leaves) somewhat regretfully, for when we come to those for humans there will be none so palatable.

COMMENTS ON A DELETION

I regret to say that not only bookworms but less innocent destroyers have been at the copy which is here being commented upon. The worms made only marginal notations and left the text intact; but someone has very neatly removed pages 333-336 of Part I: whether one of the many owners of the volume or a borrower, whether by order of the Duke or ducal censor, cannot now be known. If it was the censor, he may have thought the excised matter was too much like that of the very books which the Duke’s physician so heartily condemns. The two sheets were cut out long ago, for the edges of the cut are browned by time, and it is quite possible that the excision dates at the time of publication. Consulting the table of contents, it is clear that the excised pages dealt exclusively with remedies for impotence, love potions, charms, and other magic. Was some lovesick swain or eager maiden guilty of a theft? Hardly. Some old fellow married to a young wife? More likely. Such marriages were more frequent then than today. It is especially likely because much attention is elsewhere in the book paid to sterility in women. But we shall never know who cut out the two leaves. It is the only defect of the text.

WAS THIS A FIRST COPYRIGHT?

Before proceeding to the text itself it is interesting to observe that the author gives notice on the title page, just above the imprint, that the book is by royal authority protected against copying for twenty years—seemingly an early example of the copyright principle.*

* A personal communication to the editor from William Brown of the copyright office at Washington, D. C., states: “It does not appear that copyright in the modern sense of the term existed in any country during mediæval or late mediæval times. There was a system of licensing by the Crown for the printing of books, but this was mainly to raise revenue and exercise censorship. The first real copyright enactment for the protection of authors was the well known British statute of Anne entitled ‘An Act for the Encouragement of Learning,’ passed in 1710.”

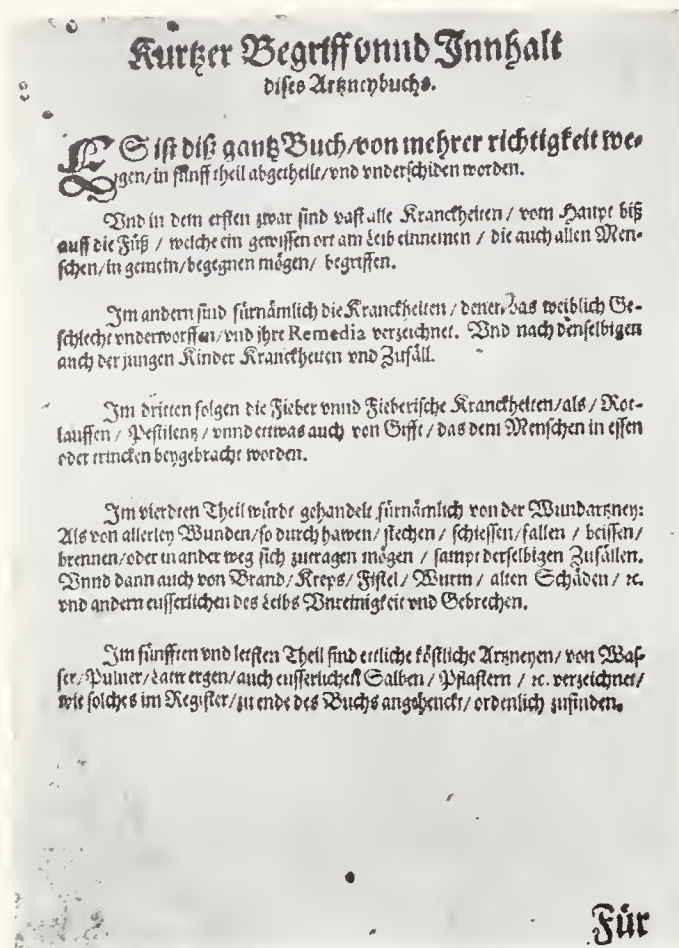


Fig. 4.—Outline of Contents. Translation follows:
BRIEF COMPENDIUM AND CONTENTS
of this Book of Medicine

For the purpose of greater accuracy, this whole book [it contains 1,000 pages] has been divided into five distinct parts:

The first dealing with almost all maladies from head to foot, occurring in particular portions of the body, common to men;

The second part deals mainly with maladies peculiar to women, and their remedies, followed by those for diseases and accidents of children;

The third deals with fevers and maladies attended with fever, such as erysipelas and pestilence, with some directions as to antidotes for poisons that may have been taken in food or drink;

The fourth part deals with medicaments in surgery, chiefly of such wounds as have occurred through flogging, cutting, shooting, falling, biting, burning, and the like, including their contingencies; likewise gangrene, cancer, fistula, worm-ulcer, old wounds, etc., as well as other external ills of the body, uncleanness, and bodily infirmities.

The fifth and last part deals with sundry excellent remedies, fluids, powders, electuaries, as well as salves and plasters, etc., as shown by the accurately compiled Register [table of contents].

Why, we may well ask, was this book so protected; and why, indeed, was it compiled at all? The answer is given in the preface, where Court Physician Gabelthouer—after referring to Adam and Eve's disobedience as the origin of all ills—explains that prior to the printing of this *Arzneybuch*, there were many so-called medical books extant, some of them purporting to be the genuine work of the famous physicians whose names they bore but which were in reality pirated and garbled texts, shamefully disfigured by mercenary printers and publishers—the preface names several of them—with numerous additions and changes which might increase the sales. The Duke and his Hofmedicus now proposed to chase these pirates out of business by publishing a protected (*copyrighted*?) collection of prescriptions chosen

by an accredited physician of unimpeachable standing. The author therefore warns the public against all other medical works, which are likely to do more harm than good. This book, he states, is the only safe guide. It is the light thrown by this preface on the origin of the book that gives the work much of its interest; it is clear that we are not here dealing with the brazen impudence of some quack, but with the highest medical and political authority of Württemberg in 1594 (the year of the preface). The astonished modern reader can only ask himself what sixteenth-century quackery might have been like, if this *Arzneybuch* represents the best that was then known to regular or scientific medicine. Besides, in view of the presumable copyright, it is evident that the book was most deliberately compiled in the thick of a fight against irregular practices. Apparently up to that time there had been no copyright or other protection against piracy; hence the Duke secured for Court Physician Gabelthouer a royal grant of protection for twenty years. The Duke had apparently, as we gather from the preface, grown exceedingly tired of the unscrupulous practices of the medical fakirs of his day—or tired perhaps of the importunities of his protégé—and had commanded Hofmedicus Gabelthouer, the respected physician of his family for many a long year, to compile an entirely trustworthy work which should embody the best and most reliable of all the remedies for bodily and mental ills that were up to that time found effective, rejecting everything else.

OTHER QUESTIONS WHICH ARISE

The present *Arzneybuch* was the result. Heaven knows what, considering the status and the contents of this work, the others must have been! The medicus goes into the most effusive details concerning the wisdom of his ducal master's decision in this and other matters leading to civic and other improvements, and cites the acts of wise rulers and the wisdom of the ancients generally, with regard to the science of medicine and the cures of disease; he stresses especially the custom of the Egyptians in exposing their sick or injured persons out in the streets, hopeful that one of the passers-by, formerly likewise afflicted, could prove helpful with counsel or medicaments.

Part I of the *Arzneybuch* begins abruptly, with no introductory matter, with prescriptions for diseases of the head and neck. The first lines of page one contain the following remedy for headache:

"Mix woman's milk with rosewater and apply to the head with a soft cloth. For very severe pains, add leek to this mixture."

The frequent recurrence of woman's milk in the prescriptions, the effectiveness of human urine, especially of babies and virgins, the potency of excrement both human and animal, are features of this highly reputable work which one is inclined to regard with astonishment, until it is remembered that even today, in Europe and here and there among foreigners now living in

America who have brought the traditions of their folklore medicine with them, such remedies are still used.

For the use of woman's milk, virgin's urine, and a variety of excrements, it is possible that the new modern psychology may have an explanation; the Freudians can certainly be counted on to trace it directly to the sexual instinct; and some habits, in eating, of dogs and other animals may offer a clue.

As the reader proceeds through the prescriptions which will be here quoted, other questions will arise: for instance, whether or not the practitioners of that day were conscious of the true and the bogus portions of some of their remedies, holding perhaps that the bogus ingredients might be useful psychically while the really valuable portion did the rest. For instance, there is constantly to be found a direction to apply "as hot as the patient can stand it" some poultice composed of excrement. The psychic value of a bad smell and a disgusting taste is not entirely obsolete in the twentieth century; and the value of hot applications is far from being even obsolescent. There is also the recurrent direction to bake or otherwise cook the ingredients or some of them; in some cases the motive for this can be dimly perceived, again it seems to be hocuspocus. These and other considerations will occur to the reader as he goes along, but as he reads let him be not too quick to scoff: there is a good deal of the sixteenth century with us yet.

The following are chosen here and there, almost at random, from the entire work.

SIXTEENTH CENTURY REMEDIES FOR HEAD AND NECK CONDITIONS

The first paragraphs of page 1 contain the following:

"For *headache*, mix woman's milk with rosewater and apply to the head with a soft cloth. For very severe pains, add leek to this mixture."

"For *continual pain of the head*, secure the skin of a stag, and bind about the head (of the warmth of the living animal; neither warmer nor colder), and keep it on day and night until relief follows."

"For *almost insufferable pains in the head*, secure a number of apricot seeds; mash to a fine pulp and mix with cobwebs, adding a little rosewater; apply this delicate substance to the aching parts."

"For *dizziness*, the most effective remedy is a few drops of the blood of turtle doves in a small glass of wine, to which would best be added a few blooms of hellebore and coltsfoot. The patient is to drink no other wine, however, and to refrain from garlic, onions, sauerkraut, and fat, and to be very moderate in all his eating."

A remedy for *nausea and dizziness* which the author recommends as almost infallible, since he has tried it with the greatest success for forty-nine years of practice, is the following:

"Take the brains of a fox, caught by dogs; bake it, and give it to the patient on an empty stomach of mornings, without any other food for some three or four hours. This remedy is most effective when the brain is secured from a fox caught in the forenoon when the moon is crescent in Virgo. To bring about complete cure, three separate fox brains are to be consumed successively, the animal always to be caught in the forenoon, by dogs. To add a little

vinegar and galanga root while the brain is boiling before being baked, is excellent. Avoid exercise during the week in which the cure is to be effected; drink very little wine and no strong wine whatever; wear corals around the neck day and night, and a cure is certain, with God's help. This remedy applies to men only. For a woman, especially a young woman, take a young female dog, cut it open, carefully secure its gall bladder, prick it and let the gall ooze into a clean tin vessel; add a little vinegar, and give to the patient to drink. But make sure to hold your hand over her mouth after she has drunk the remedy; otherwise she is likely to vomit it; if, nevertheless, that happens, you must try it again with another female dog's gall. This remedy is also effective with some men, excepting that the dog must be male. If it seems impossible for the patient to retain the gall, add sugar until the bitter taste is sufficiently overcome."

Yet another infallible remedy for *continual dizziness* is the following:

"Take a young swallow from her nest when the crescent moon is in Virgo; cut off the head and let the blood run into a vessel containing white frankincense; stir thoroughly until the fluid thickens; then give it to the patient when the moon is waning, three days in succession. But by all means see to it that the patient during the progress of the cure does not become angry at anything."

For *epilepsy*, the following remedies are recommended as infallible:

1. "The droppings of wild geese, burned to a powder in a glazed pot; give to the patient night and morning in wine or beer, in quantity equal to a gold guilder. This is also excellent for fevers of all sorts."

2. "The marrow of a female deer, drunk in warm beer."

3. "Skin a small mouse, remove its entrails except the lungs and liver; burn in a new unglazed pot; mash to powder; mix with water of linden blossoms; give a tablespoonful every morning; half portion for children." [And to this prescription the medicus adds "*Probatum*" (it has been proved).]

4. "At the first signs of epilepsy, as the very best preventive, obtain the heart of a stork and give it to the patient to eat." [The text does not state whether raw or cooked. "*Probatum*" is again the commentary.]

5. "Very serious cases are effectively treated as follows: Take a handful of peacock droppings, mix in wine to the weight of a pound. As soon as the patient is capable of it, make him drink about a third of this quantity; put him to bed and secure a good sweat. After that, give him the second third of the mixture and again induce a sweat. After another hour, give him the remainder of the mixture and cover him heavily for a final sweat. This is practically certain to effect a permanent cure."

6. "Take the right eye of a wolf, the left of a she-wolf; dry, and hang about the neck of the patient, who must wear them for three months continuously, during which time he must neither bathe nor otherwise get his body wet."

Treatment of insanity:

1. "Cut the patient's hair close to his head (shave it off completely by preference); then cut a ram's liver in two and bind it while yet warm on the patient's head."

2. "Or: Cut in two a living rooster and apply similarly; or a young she-wolf, if you can procure one; or apply a sheep's lung in the same way."

3. "In case of complete insanity, take a freshly baked loaf of bread; remove the soft inner part and replace with a complete ox-brain; bind on the patient's head and it will cure his brain and restore his mind."

4. "Or: Rub the patient's hands and feet well with vinegar; give him a thorough enema; then rub a black chicken [it does not state whether dead or alive] over his shoulders and head, especially the forehead. That

will bring relief. Seeds of poppy and bulrushes mixed in white of egg and woman's milk, applied to the head and put in ears and nostrils, will speed the cure."

5. "Cut off with one blow the head of a black strong ram that has never coupled. Make sure not to kill him otherwise. Boil with skin, wool and all, until the brain is well done. Then put into a pan well filled with flour. Add the following spices, well pounded and mixed. Then roast all thoroughly. Compel the madman to eat it, any way you can, preferably a third of it three days in succession, whether willing or not. The spices which you must be sure to add are the following: cinnamon, nutmeg, nutmeg flower, clove, and ginger, ten grains of each. See to it that he goes to sleep after eating the mixture; the heavier the sleep the better."

Treatment of insomnia:

1. "Mix in rosewater, the water from the entrails of a red chicken, and woman's milk, equal portions of each; apply lukewarm on a soft cloth to the temples."

2. "Take the grease from an ass's ear—it matters not what kind of ass—and apply to the patient's temples."

3. "Fresh goose grease, first heated in a tin can placed in hot water, then rubbed over the temples on going to bed."

Scabby or scurfy head:

1. "Cut off all hair; soak head in lukewarm lye-water. Secure some white dust from the miller, mix it with the white of an egg to a sort of cake; apply on cloth in little patches where the scabs are. Every day, after removing the little patches, wash the head with the urine of a red cow (make sure that the cow is red all over) mixed with a little alum. If the scabs are very putrid, increase the amount of alum."

2. "Procure some small toads of the kind that appear after a rain, burn them to powder, put in water mixed with lye; apply to the scurfy parts of the head."

3. "Take nine red snails, put into a new pot, add a handful of salt, and let stand for several days. Then take the fluid and rub it well into the scabs, but be very careful not to get any of it into the patient's eyes. Use every day or every other day."

University of California at Los Angeles.

(To be Continued)

CLINICAL NOTES AND CASE REPORTS

SPONTANEOUS RUPTURE OF SPLEEN— FOLLOWING MALARIA THERAPY FOR GENERAL PARESIS

REPORT OF CASE

By EDWARD W. TWITCHELL, M. D.
San Francisco

THE patient was a 32-year-old male, who exhibited typical physical mental and laboratory findings of general paresis in a stage of rather marked mental dilapidation. Long-continued treatment with mercury, bismuth, and arsenicals had been without avail.

On July 20, 1929, patient was given, intravenously, about five cubic centimeters of blood, taken from another patient with inoculation malaria. On September 7, 1929, as there had been no response in the way of fever, five cubic centimeters of citrated blood, obtained from a third patient, was given into the buttock. The following day his temperature rose to 104.5 rectal. Fever, tertian and quotidian, continued. Numerous malarial parasites were discovered on several examinations. After eighteen paroxysms of fever, which he stood quite well, showing no particular exhaustion, on the morning of September 10 he was given ten grains of quinin by capsule and

shortly thereafter vomited. Following the vomiting he had a collapse, which was treated with stimulants and quinin in suspension, given at the rate of three grains every three hours. The next day, however, the abdomen began to distend without pain, and efforts were made all this day to relieve the distention by stimulant enemata. The next morning the distention persisted and, in addition, the patient began to vomit. Dr. Thomas O'Connor, on being called, suggested the possibility of an exploded appendix. Patient was taken to a hospital, where that evening an incision was made in the appendix region and the abdominal cavity was found full of blood. The wound was closed, and a midline incision was made higher up. Through this means it was discovered that there was a large accumulation of coagulated blood in the neighborhood of the spleen and soon an irregular tear was felt on the lower surface of that organ. The patient being in a greatly exhausted condition the wound was closed without any further investigation. He died the following morning.

Pathological Report.—(By Dr. A. M. Moody.) There is free blood in the peritoneal cavity and a large amount of clotted blood adherent to the spleen and between it and the diaphragm.

The spleen is soft and has the following dimensions: 15.5 centimeters long by 10.5 centimeters wide and from 3 to 5.5 centimeters thick. Freed of blood clots and after fixation it weighs 480 grams. It crepitates and floats in water. There is an irregular tear, 8 centimeters long, in the capsule extending obliquely from a point in the hilus 5 centimeters below the upper end to a point 4 centimeters from the lower end on the posterior edge. The torn region is irregularly covered with clotted blood.

On section, after fixation, it contains scattered small regions of infarction at the hilus and beneath the capsule over the cortex. There are numerous gas spaces disseminated throughout.

Smears of the fresh spleen pulp contain frequent Gram-positive bacilli (*B. welchii*), but no whole malarial parasites are found after a thorough search of smears stained with Wright's stain. There are, however, scattered deposits of pigment and blue-staining fragments, suggestive of disintegrated plasmodia.

Sections of spleen contain hyperplastic pulp with scattered regions of necrosis, leukocytic infiltration, pigmentation, and a decrease in lymphocytes. There is no cellular reaction about the gas spaces.

The brain is characteristically paretic in type. There is a moderate perilobular hepatitis, but other organs in the abdominal cavity are devoid of noteworthy alterations.

Death resulted from anemia secondary to hemorrhage from the spleen, following its spontaneous rupture.

909 Hyde Street.

Playgrounds Are Becoming Epidemic.—The number of towns and cities in the United States and Canada reporting play areas under leadership to the Playground and Recreation Association of America grew last year to nearly a thousand, and more than 1100 new play areas were opened within the year. Eight hundred and ninety cities reported a total of 23,000 recreation leaders and a total expenditure of nearly \$33,540,000 for public recreation. During the year about 14,000 persons were enrolled in training courses for recreation leadership.—*Bulletin United States Children's Bureau.*

Thirteen Million Profit of the Mayo Clinic to Be Used for the Advancement of Medical Science.—Dr. William Mayo of Rochester, Minnesota, announced April 11 that the fortune estimated at \$13,000,000, which he and his brother have amassed at their famous clinic will be used for the advancement of medical science. It will go to the Mayo Foundation for Medical Education and Research, he said, which already is training three hundred surgical hands to carry on the work of its two sponsors.—*Illinois Medical Journal*, June 1930.

BEDSIDE MEDICINE FOR BEDSIDE DOCTORS

An open forum for brief discussions of the workaday problems of the bedside doctor. Suggestions for subjects for discussion invited.

SENILE KERATOSES

H. J. TEMPLETON, OAKLAND.—If all senile keratoses were thoroughly removed at an early stage there would be far fewer skin cancers. Untreated, a fair percentage of these apparently insignificant lesions develop into the more malignant of the epitheliomas, the squamous cell variety. On the other hand, if they are diagnosed and treated early the therapeutic and cosmetic results are excellent. Moreover, the cause of preventive medicine would be aided. The cancer publicity campaign of Bloodgood and others is causing the public to become "cancer conscious" and to seek the advice of physicians in regard to these and other cutaneous lesions. It behooves us, then, to be prepared to handle them.

These lesions are primarily the result of senile changes in the skin, "the skin becoming old in spots." Contributory causes are exposure to wind and sunshine and local trauma, such as razor cuts and thorn pricks. Most of them are seen in the sixth and seventh decade of life, but they may occur in middle age. They are most frequently seen on the face and on the dorsum of the hands. Beginning most frequently as roughened spots which can often be felt before they can be seen, the lesions gradually increase in depth and breadth until they are about the size of a split pea. About this time a crust forms which the patient may remove but it soon recurs, generally thicker than ever. After several such cycles have occurred the base becomes thickened and reddened and epitheliomatous degeneration is in progress. Another variety of this disorder begins as brownish "old-age spots." These vary from split pea to coin size and are smooth at first. Later the surface becomes thickened and warty and the above described cycles occur.

While it is true that not all senile keratoses become epitheliomatous, the percentage of such degeneration is sufficiently high to justify the practice of removing all of them. Certainly removal is imperative if they are growing, are being irritated, or are showing thickening of their bases.

Before attempting to treat these lesions one should familiarize himself with their appearance when undergoing malignant degeneration, for in such cases treatment should be quite radical. Less energetic measures are permissible in the early stages for the sake of a good cosmetic result. If the lesion is quite superficial thorough curettage followed by the application of trichloroacetic acid will generally suffice. This is a method which is available to all, requiring no expensive apparatus. Thirty to sixty-second applications of carbon dioxid snow act very nicely also. If the lesions

are somewhat thicker they can be destroyed very effectively by the actual cautery or electrodesiccation. If cosmetic results are paramount it may be desirable to first try applying the beta rays of radium.

Following the destruction of all of the existing keratoses the patient should be advised to thoroughly cold-cream the face (or hands) each night. He can also be given an ointment containing 10 per cent of salicylic acid in lanolin and cold cream to apply to small areas of skin which show any roughening. He should report to his physician promptly if any new keratoses develop in spite of such preventive treatment.

* * *

MERLIN T. R. MAYNARD, SAN JOSE.—Precancerous lesions of the skin are most commonly of two types, one being the senile keratoses and the other the seborrheal keratoses. The senile types are most commonly found on the face, backs of the hands, and the tips of the ears. They are also found, but somewhat less commonly, on the back and sides of the neck.

Roughly speaking the senile type occurs on the areas of the skin which are most commonly exposed to sunlight. The seborrheal type usually occurs on the face at the hair line, on the bridge of the nose, above the clavicles, between the shoulder blades, and between the breasts. Their distribution follows the location of the greatest number of sebaceous glands in the skin and those areas on which the sebaceous material is showered, such as the sides of the neck.

There are many other types of precancerous lesions, notably moles, keloids, sebaceous cysts, arsenical keratoses, and warty growths such as condylomata. However, since the malignant degeneration of these lesions is only occasional they will not be included in the scope of this discussion.

The causes of senile keratoses are prolonged exposure to sunlight, accompanied by atrophic changes in the skin. The hyperkeratoses develop as scaly, firmly attached spots that are removed with difficulty and are found to overlie a raw or a shiny surface; in the later stages of precancerous changes they may have a reddened and thickened base, at which time it is very difficult to draw the line between inflammatory reaction and actual cancerous degeneration.

The sebaceous keratoses are likewise firmly attached to the skin, but on removal are found to have prolongations into the orifices of the sebaceous openings. Degeneration follows very similar lines to those of the senile type.

It is well worth remembering that keratoses below a horizontal line drawn through the tip of the nose are more likely to develop into the squamous cell type of carcinoma. Those occurring on the back of the hands are almost invariably squamous in type and require very radical treatment.

The senile keratosis normally develops in old age. However, the condition of senile skin can be produced by injudicious exposure to sunlight and the result of overindulgence in sun baths. In fact, we are occasionally seeing senile changes in juvenile skins.

The treatment of both seborrheal and senile keratosis in my hands is simply freezing with carbon dioxid snow for ten seconds. The underlying seborrheal condition should be corrected as far as possible by local treatment with appropriate ointments or x-ray. Exposures of x-ray or radium are successful if used in both types of lesions and results in an absence of scars. The best treatment of all is prevention. The skin must not be overexposed to sunlight. It must always be guarded against a second degree sunburn. In the aged even a mild first degree sunburn is dangerous.

The patient subject to keratoses should always keep the skin covered with a mild ointment and should wear a wide-brimmed hat. All the lesions that develop should be removed as soon as possible and radical destruction must be used on those that show reddening and thickening of the underlying skin.

* * *

MOSES SCHOLTZ, LOS ANGELES.—The clinical significance of the skin cancer is not sufficiently appreciated by the general profession.

The available statistics in this country assign to skin cancer, as the most conservative estimate, 5 per cent of the general cancer mortality. Taking the average annual figure of general cancer mortality as one hundred thousand, it means that skin cancer alone kills at least five thousand people a year.

The responsibility for the mortality from skin cancer comes back to the rank and file of the medical profession because skin cancer is the only clinical type of cancer which admits 100 per cent prevention and 100 per cent cure if recognized and treated early. It can be accepted, as a clinical axiom, that cancer never arises from a perfectly normal skin, that it develops only on the skin pathologically altered, as in so-called senile keratoses, nevi, scars, patches of leukoplakia, chronic ulcers, etc.

These lesions came to be known as precancerous lesions and justly so, as every case of skin cancer in the early stage of its development takes its inception from one of these lesions.

The most important type of precancerous lesions, numerically, are unquestionably senile keratoses, well-known brown and grayish rough keratotic spots on the face of elderly people. Sometimes they assume the seborrheic type, in which case they present a softer consistency, yellowish tinge and a more benign prognosis.

It is the keratotic type that has a strong tendency to degenerate into basal celled and not uncommonly squamous-celled epitheliomata. It is also a well-established empirical observation that sunlight exerts actinic stimulative effect on senile keratoses and is conducive to a development of the new lesions. It is therefore a basic prophylactic measure to advise patients to avoid prolonged sun exposures.

Once a person develops keratotic lesions, a tendency toward developing new lesions is gradually established. For this reason it is advisable to urge these patients, after the destruction of the present lesions, to report for inspection two or three times a year. Senile keratoses are easily and effectively destroyed by a variety of therapeutic measures. The method of choice is electrodesiccation or electrocautery. More superficial types, particularly soft yellowish seborrheic types, can be destroyed with carbon dioxid snow or chemical cauterization, preferably by concentrated trichloroacetic acid. Some of the seborrheic superficial lesions can be cleared up even by ointments containing 4 to 8 per cent of salicylic acid. Nitric acid should be avoided because of its tendency to produce scars, silver nitrate because of its superficial and mild effects.

The crux of the problem of prevention of skin cancer lies rather in the education of the profession, much more than in the education of the public. It is rather unfortunate that many practitioners consider it below their surgical dignity to handle such insignificant-looking lesions as senile keratoses. Yet, a persistent and continuous general campaign of extermination of these lesions is as sure to bring about a reduction of mortality from skin cancer to a minimum, as the campaign of extermination of rats is the surest prevention of bubonic plague.

Colored Students at University of California Offer to Assist Infirmary.—In appreciation of the educational opportunities that have been offered them by the University of California, and as a token of good will to their fellow students, members of a colored fraternity and sorority have pledged themselves to furnish a room in the new \$400,000 student infirmary which will open in August.

Dr. Robert T. Legge, professor of hygiene and university physician, was apprised of the unsolicited gift offer by the officers of the two organizations involved, the Delta Sigma Theta sorority, and the Omega Si Phi fraternity. Vivian Marsh is president and Muriel Taylor is secretary of the sorority, and Thomas Jackson and Harry Bryant are president and secretary of the fraternity.

The gift came about as a result of an announcement by Doctor Legge some weeks ago that, because of the limited funds available, some of the rooms in the new building—which is almost completed—would have to be left unfurnished and unused unless private individuals cared to furnish them as memorials to various individuals whose names would appear on bronze plaques.

Unexpectedly the two organizations of colored students arose to help solve the problem by furnishing one two-bed room for the benefit of all students in the university, regardless of race or color.—*University of California Clip Sheet*.

Some members of the California Medical Association may wonder why this seeming digression from regular organization work should have

been indulged in by members of the Council. The Council adopted the resolutions in order to call the attention of the members of the California Medical Association to the campaigns, which by faddists and certain mercenary food interests have been carried on in recent years with so much vigor. The constant and powerful propaganda so carried on, strange as it may seem, was responsible for a tremendous change in the amount and kinds of some of the staple foods which had long been used by the American people. So much was this the case that great agricultural and other interests of the United States felt the ill effects of these fallacious exploitations. Of course, the citizens who fell for the propaganda in many instances also paid a heavy price, both from the standpoint of health and of direct and indirect money loss.

* * *

The Resolutions Are Worthy of Perusal.—Members of the California Medical Association who have not already done so may well glance over the resolutions before referred to. Those resolutions can be a handy reference and reply to patients who seek the advice of physicians concerning the value of staple foodstuffs and who have been or are on the verge of being led into dietary errors through food faddism and fallacies of such nature as in the long run would make for far more harm than good.

* * *

What Some California Authorities on Foodstuffs Have Stated.—The problem here discussed has not been a new one in California. Among other medical men who in the past have called attention to the subject is Dr. W. C. Alvarez, who when he was a member of the staff of the Hooper Foundation for Medical Research at San Francisco went on record by stating:

... Some men and women can be greatly helped by bran, and their constipation can be cured if they happen to have the digestion of an ostrich; but if they happen to have congenitally defective or handicapped digestive tracts, if they have ulcers or narrow places, they cannot handle the mass of indigestible material and they promptly get in trouble. . . .

In a recent letter to the editor from Professor M. E. Jaffa of Berkeley, who is so well known as the chief of the Division of Sanitation of the Bureau of Foods and Drugs of the California Department of Public Health, he wrote:

I am strongly of the opinion that the use of white bread mixed with other foods is not the cause of grave illnesses. Personally, I have used such combinations for upwards of sixty years and expect to for some years hence, just how many I cannot tell.

In the *Weekly Bulletin* of the California Department of Public Health, Vol. VI, No. 47 (copies of which can probably be had on application to the State Board of Health office), Doctor Jaffa also went on record as follows:

There are so many fads and fallacies in nutrition that it is somewhat difficult to present even a brief résumé. Among the most prominent, however, may be mentioned: 1. The reducing fad. 2. The bread fad. 3. The sour milk fad. 4. The vegetarian fad. 5. The no meat fad. 6. The vitamin fad. 7. The bran or roughage fad.

The American Medical Association's New Committee on Foods.—Along this line it is of interest to note that the American Medical Association recently appointed a "Committee on Foods" as a special subcommittee of its Council on Pharmacy and Chemistry. That committee from time to time presents in the *Journal of the American Medical Association* much interesting and valuable information on foods. It is hoped that this subcommittee on foods will make it possible to bring about an improvement in the attitude of citizens to proprietary and other foodstuffs somewhat akin to that which was brought into existence in the medical profession through the work and reports on drugs and proprietary preparations by the Council on Pharmacy and Chemistry of the American Medical Association.

* * *

Doctrinaire Propaganda in Food Fallacies Should Be Combated.—These brief comments are here presented to indicate to California Medical Association members why the Council of the California Medical Association saw fit to pass certain resolutions on this subject. It is important that members of the California Medical Association should be alert in these matters. With proper facts at hand it is much easier to destroy the influence of fallacious propaganda because such faddist publicity can be much easier attacked and overcome when it is still in its incipient stages.

In the United States the sponsors of these fads and fallacies in nutrition have been successful in leading a large number of citizens to take up these faulty food fancies through the persistent and exaggerated statements that health would be promoted by the adoption of the advice so dispensed (and, we may add, by the food and advice so purchased by the victims of the exploitations).

An interesting example of how some of these food faddists work their promotion games recently came to light in Los Angeles when the local newspapers in glaring headlines called attention, with photographs and text, of scores of citizens in humbler walks of life who went to the city prosecutor's office to enter complaint against one of these so-called "better health food foundations." The story can be told by quoting from the *Illustrated Daily News* of April 23, 1930. To those readers of CALIFORNIA AND WESTERN MEDICINE who may have been somewhat skeptical concerning our preceding paragraphs, the following quotations should prove the desirability of the resolutions which were passed by the Council of the California Medical Association.

The caption of the photographic cut of complainants was as follows:

All Exercised About Their Health.—Part of crowd of 150 complainants shown as they appeared before City Prosecutor Lloyd Nix yesterday charging they had paid sums ranging from \$100 to \$1000 each to Gilbert Thayer Health Foundation for ailments they had not been suffering from. The health organization suddenly closed its doors, they said.

The text of the newspaper article reads thus:

An investigation into the — Health Foundation formerly operating at Fourth and Broadway was launched yesterday by City Prosecutor Lloyd S. Nix, after hundreds of complainants had stormed his office.

Three hundred men and women came in charging that they had paid from \$100 to \$1000 apiece for treatments for all kinds of ailments which they later were told were purely imaginary.

The complainants asserted that they visited the foundation, said to have been conducted by "Dr." Arthur Benson, listened to the sales talk for health foods and then allowed themselves to be signed up for treatments for various illnesses. Two weeks ago the patients, on calling at the foundation, found it closed.

STATISTICS OF STATE MEDICAL EXAMINING BOARDS—WITH COMMENTS ON SOME OF THE CALIFORNIA TABULATIONS

Statistics as Printed in the Journal of the American Medical Association.—The *Journal of the American Medical Association* in a recent issue (Vol. 94, No. 17, page 1307), presents medical statistics for the year 1929 for the different state medical examining boards of the United States. The report represents a tremendous amount of work and contains facts and figures which should be of interest and importance to the medical profession.

Present-day standards of medical training assume a prominent place in these licensure statistics, and members of the medical profession who are interested in modern-day trends in practice will be able to come to better and sounder conclusions concerning medical practice acts through a perusal and consideration of the facts which stand out in the article.

Because, like charity, many things should begin at home, so in this matter of state medical board statistics those tabulations which deal with California should be of special interest to Californians. To that end the editor of CALIFORNIA AND WESTERN MEDICINE calls attention to some of the data in this *Journal of the American Medical Association* article, which have a special relationship to conditions affecting the practice of medicine in California.

At this time a discussion of this subject also should be of special interest because the California legislature will convene in January 1931; it being quite possible that one or more amendments to the Medical Practice Act of California then may be submitted. On this same subject, mention also may be made of the report of the Special Committee on Revision of the California Medical Practice Act and of a possible basic science act, which committee was appointed by the Council of the California Medical Association more than a year ago, its report being rendered to the House of Delegates at Del Monte. (See page 431 of the June 1930 issue of CALIFORNIA AND WESTERN MEDICINE.)

* * *

California's Licensure Problems by No Means Solved—Value of a "Basic Science" or "Qualifying Certificate" Law.—The last word concerning medical and healing art licensure in California by

no means has yet been said. To some members of the medical profession, licensure conditions in California may seem to present both a depressing past and a poor future outlook, but in the light of the struggles which in the days gone by have taken place to safeguard medical standards in California, the wonder is not that we have so little, but rather that we still have so much. Colleagues who hold to the opposite viewpoint should ask themselves what part in the way of time and money expenditures they themselves bore when these battles of the past were on. For let it be kept in mind that, in the battles for preservation of principles, all have direct and personal responsibilities. Therefore, no matter what may have happened in California as regards cultist medicine, the members of the California Medical Association should feel grateful, insofar as regular or scientific medicine is concerned, that the standards and requirements of California measure up very well with the best in America.

It is quite true, when the pictures of the influence and ramifications of California cultist medicine are gazed upon, that one has less cause for gratulation. To the viewpoint of the editor, that is why a so-called "Basic Science Act," or what is probably a better term, a "Qualifying Certificate Act," will continue to come before the organized medical profession of California for consideration. As the editor sees this problem of proper minimum standards for all classes of practitioners of the healing art, such a basic science, or rather, such a qualifying certificate law, if properly drawn, could be made to become a factor, if not the most powerful one that could be brought forward, to prevent new and as yet unborn cults from getting a foothold in California in the future. For once such a cult of low educational and training standards gets such a foothold, it is almost certain that it will follow the course of other California cults in the past by almost inundating the commonwealth first of all, with a large number of graduates.

These graduates will then seek legal recognition from California, and with the precedent of separate recognition of naturopaths, osteopaths, and chiropractors, probably receive it. The new cult would probably create its own standards of education and licensure, and California might witness a repetition of the chiropractor situation in which California gives licensure to about five chiropractors to every single physician and surgeon.

* * *

Number of Osteopathic Graduates Who Were Granted Licenses as Physicians and Surgeons in California.—Along this line it is interesting to note that of a total of 169 graduates of osteopathic schools who in 1929 were registered as physicians and surgeons in different states of the Union, the State of California was in the lead with a total of ninety-three osteopathic practitioners who were given such licenses. On this point the *Journal of the American Medical Association* states:

Boards in four states, however, registered as physicians and surgeons, by examination or reciprocity,

169 graduates of osteopathic colleges, which, if measured by the same standards as are applied to medical schools, could be graded only in Class C—which are no longer deemed worthy of mention among medical schools—since the teachers, with rare exceptions, have not had a training in a medical school, or in differential diagnosis, and therefore are not qualified to instruct others in the essentials of the healing art. . . .

* * *

The Medical Schools of California.—Coming back to medical schools now actively functioning in California, we find that California has three schools of nonsectarian medicine, namely, the medical schools of the University of California and of Stanford University at San Francisco, and the College of Medical Evangelists at Los Angeles. The recently revived School of Medicine of the University of Southern California thus far has only given instruction to first and second year medical undergraduates and on that account does not at this time enter into these comments.

Last year's graduates from the California medical schools were licensed and admitted to practice in California as follows: University of California had 45 graduates and 40 were licensed in California; Stanford University had 49 graduates and 45 were licensed in California; the College of Medical Evangelists had 60 graduates and 53 were licensed in California.

* * *

Where Graduates of Nondescript Colleges Seek Licenses.—An interesting table gives the number of graduates of Class "C" and nondescript colleges licensed in the last ten years by different medical boards in the Union. (The term "nondescript" is used by the American Medical Association Council to refer to former Class "C" medical colleges, the Class "C" group being no longer recognized by many state boards.)

Massachusetts here leads off with a total of five hundred and thirty such graduates who in the last ten years received licenses to practice in that state, being followed by California, which has licensed four hundred and eighty-four such graduates of Class "C" and nondescript colleges.

For the single year 1929, California gave licenses to ninety-four graduates of such schools, out of 116 who presented themselves for examination or license.

* * *

Graduates of Class "A" Medical Schools Today Form the Bulk of New Licentiates.—For the year 1929 the addition to graduates already licensed in previous years to practice in the different states of the Union is represented by a total of 7640 physicians, this being 267 more graduates than were licensed in 1928. It is interesting to note that 87 per cent of the physicians who were thus granted licenses in 1929 came from Class "A" medical schools. By way of contrast, the percentage in the year 1918, for graduates of Class "A" medical schools, was 58.

Another table gives the figures as applied to the different states of the Union, of applicants who received licenses or who were rejected, for each year since 1925. In California, for this five-

year period, 1799 graduates were so examined. Of this number, 1651 were registered and 148 were rejected; the percentage of rejections for the five years being 8.2. In New York 5084 applicants were examined with 12.5 per cent rejections; in Massachusetts 1451 applicants were examined with 29.2 per cent rejections. These percentages, however, do not tell the entire story. They are mere indications or gestures in certain directions. For proper comparison, due allowances must be made for the various factors and differences existing in the medical practice set-ups in the different states.

The total number of physicians and surgeons to whom certificates were granted in California during 1929 was 660. In the same year ninety-three osteopaths secured licenses as physicians and surgeons, these licenses being, however, granted by the California Osteopathic Board.

* * *

Figures Showing Annual Accessions of Medical Licentiates in California.—The total number of nonsectarian physicians who were licensed in California in different years since 1925 are as follows: in 1925, 584 physicians were licensed; in 1926, 630 physicians were licensed; in 1927, 648 physicians were licensed; in 1928, 595 physicians were licensed; and in 1929, 660 physicians were licensed. Inasmuch as the total numbers of nonsectarian graduates for the entire United States, and also for California, have not undergone great variations in recent years, it is possible that California will probably grant licenses to approximately the same number of licentiates for the next few years. However, the publicity associated with the recent United States census figures may direct the attention of a much larger number of physicians to California and may lead to a considerable increase in the number of licensure applicants during the next several years.

* * *

Relative Proportions of Class "A," Class "B," and "Nondescript School" Graduates.—In the entire United States, considering the total of 7646 graduates who received licenses, Class "A" schools supplied 87.2 per cent; Class "B" schools, 3.4 per cent; Nondescript and Class "C" schools, 3.6 per cent; and miscellaneous and foreign schools, 7.1 per cent. These figures may be taken as a general index of the type of medical service which may be expected in the future, insofar as scientific training and ability are concerned.

In line with the percentages given, it may be stated that during the last six years California has given licenses to 2704 graduates of Class "A" medical schools; to 145 graduates of Class "B" medical schools; and to 362 graduates of "Nondescript Schools."

* * *

Reciprocity Figures.—In the matter of reciprocity, California registered 268 physicians who in 1929 came to it from other states, and at the same time gave credentials to fifty physicians who had been previously licensed in California

who desired to transfer to other states by reciprocity. The total of reciprocity licenses as applied to all states of the Union has increased from 989 in the year 1907 to a total of 2308 for the year 1929. In the last five years a total of some 221 physicians who had been licensed in California took transfers or reciprocity credentials to other states.

* * *

Amazing Progress in Elevation of Educational Standards in the Last Twenty Years.—A very interesting paragraph in this article in the *Journal of the American Medical Association* reads as follows:

Including Alaska, there are forty-three states which have adopted requirements of preliminary education in addition to a standard four-year high school education. Of this number, forty now require the two-year standard. All state requirements of college work have been established since 1908, twenty-one years ago. Only one state still has no definite requirement of preliminary education, while six states still require only a high school education.

It is interesting to note also that fourteen states now require the completion of a year's internship in a hospital before the candidate is qualified to take the professional examination. All such requirements also have been adopted since 1909. . . .

* * *

Unfortunate Results When Sectarian Boards Have Power to Grant Physicians' and Surgeons' Licenses.—Commenting on the lesser number of graduates of other than Class "A" medical schools who now present themselves, and on commonwealths such as California, which give licenses to osteopaths to practice as physicians and surgeons, the *Journal of the American Medical Association* makes the following statement:

The publication of the tabulations referred to has largely reduced the number of low-grade medical school graduates licensed each year. These tabulations also revealed the increasing tendency to license osteopaths as physicians. Under fair examinations it was shown that large percentages of such candidates fail.

In California, however, the osteopaths have been granted a separate board of osteopathic examiners to license them as physicians and surgeons under the same law which provides for graduates in medicine and in this way obtain the same privileges as physicians, but have been exempted from the reasonably severe examination given by the board of medical examiners for the licensing of graduates of medical schools. The different character of the two examinations is indicated by the fact that since this concession was secured the failures of osteopaths were reduced by 30 per cent.

* * *

A Contrast Between Medical and Legal Profession Licensure Standards.—Just as the above comments were ready to go forward to the printer, there appeared in the *Los Angeles Times* of June 20, 1930, a report from the California State Bar Association, on licensure standards of the legal profession.

From what has been said in the preceding paragraphs it is noted that the medical profession of the United States started a radical house clearing in its medical school and licensure standards more than twenty years ago. For instance, in the year 1905 there were in the United States 153 medical schools who sent their graduates

before state examining boards. In 1929, however, there were only sixty-four recognized medical schools in the United States whose graduates could appear before the different state examining boards for licensure.

The article in the *Times* sheds light on the deplorable standards still existing in the legal profession. Fortunately under the new "state bar association" organization of the legal profession, there can be little doubt but that from now on our colleagues in the profession of law will make up somewhat for their past tardiness.

A consideration of some of the problems which even today face the legal profession in the matter of legal licensure may be of value to medical men in more ways than one. The following excerpts show that a sister profession has similar educational problems to those met with in medicine. Also that with a legal profession committed to high standards of legal practice in the future, it may be fair to expect in the future a more stringent enforcement of the provisions of our medical practice laws when our cases go before the courts.

As a semi-consoling thought, therefore, and because of the general facts and principles brought out, these excerpts from the state bar association report will be here printed:

It is an astonishing fact that the compulsory educational requirements of persons seeking to practice law in California are below those of persons desiring to become barbers or beauty culturists.

The result has been to make California a dumping ground for would-be lawyers who have failed to pass examinations in other states.

It is impossible to believe that the legislature of California will continue to tolerate this condition, affecting as it does the safety, the interests and the welfare of the public which looks to those practicing before the bar for protection. . . .

In California the only requirement of a person seeking to take the examination for the bar, and to enter upon the vital profession of the practice of law, is that he or she be twenty-one years of age, be of good moral character, and have had three years of study in the law.

The result has been to encourage fly-by-night law schools to induce many persons entirely unfit to undertake the study of law, and to encourage a great number of young men and women to try to become lawyers through correspondence schools and home-study courses.

The legal profession is an important one, and those desiring to participate in it should be persons of intelligence and character. More harm is done to the public by attorneys who are ignorant than by attorneys who are guilty of willful wrongs in the carrying on of their business. . . .

No further comment is necessary. One need only to change the word "legal" in the quotations just given to the word "medical" to make the paragraphs accurately describe conditions which existed in the medical profession in California years ago, and which so far as cultist medicine is concerned, may still be stated to apply.

Until these sore spots in the professions of medicine and law are healed, it will be necessary to carry on the battle for standards of education and training that will make for an adequate protection of the public, and at the same time be a real credit to two of the learned professions.

MEDICINE TODAY

Current comment on medical progress, discussion of selected topics from recent books or periodic literature, by contributing members. Every member of the California Medical Association is invited to submit discussion suitable for publication in this department. No discussion should be over five hundred words in length.

Medicine

Seasonal Hay Fever—Some Problems in Treatment.—Almost two decades have elapsed since Noon¹ and Freeman² in 1911 published from Sir Almroth Wright's laboratory in London the first reports of the successful treatment of hay fever by active immunization. Despite the tremendous amount of work done by American and European investigators since that time, many practical problems remain unsolved. The solution of these are essential before the aims of treatment can be more successfully achieved. It is true as Feinberg³ has emphasized in a recent report on the progress in hay fever therapy that most workers are now obtaining some degree of relief or improvement in a much larger percentage of their patients, but that wide differences exist in the results of even those physicians who are devoting much time to this work is quite apparent from their recent publications. This great discrepancy in the results of treatment are to be sought, in the main, in the absence of a standard method of pollen extraction and of biologic assay and in the lack of knowledge concerning the best route of inoculation, the relative merits of preseasonal, coseasonal and perennial desensitization, and lastly, in the period over which treatment should be extended. It is my purpose to discuss briefly some of these problems.

The occurrence of group reactions in pollen sensitization in a large percentage of patients has often made the selection of the appropriate pollen or pollens for treatment very difficult. Because the pollens of closely allied families of plants have in common a characteristic structural arrangement of the protein molecule it is the rule, for example, that patients sensitive to Kentucky blue grass or rye grass also give reactions to many other members of the Gramineae family. But treatment to be successful must be carried out with the pollen in the patient's environment, the period of pollination of which corresponds with the patient's symptoms. This conclusion would seem to be justified on the basis of good clinical observation, although it is true that there is some experimental evidence to controvert it.

One of the great obstacles to the development of a standard method of hay fever therapy is the lack of a standard method of extracting pollen protein and of a standard method of biologic assay of these extracts. There is as yet no United States standard of potency. The original Noon pollen unit expressed in quantity of pollen toxin which can be extracted from the thousandth part of a milligram of pollen is still in use. But the

term "pollen unit" conveys no information, because the effective strength of an extract depends on the quality and purity of the pollen used and on the method of its extraction. The determination of the potency of an extract based upon its nitrogen content has not been found a reliable method of standardization by all workers. Indeed there is still some question whether the antigenic properties of a pollen extract go hand in hand with its nitrogen content. At present the effective strength of an extract can be measured only clinically. The initial dose can be determined by the reactions obtained when the patient is tested to various dilutions of the antigen. Further increments are made only until a dose is reached which gives the patient relief of symptoms, for as Rackemann⁴ has shown, success in treatment demands a course of doses of a size and extent which is optimal for the patient.

The subcutaneous route of injecting pollen antigen used in the original work of Noon has been employed by most workers. In recent years Phillips⁵ has called attention to certain advantages of the intradermal method of injection, particularly in very sensitive patients in whom constitutional reactions are feared and in those in whom coseasonal treatment is desirable. Further studies of the value of intradermal injections should be made because, as Kämmerer⁶ suggests, our knowledge of the epidermis as an immunologic organ is still meager, and it may be theoretically possible that a more effective desensitization may be attained by this route than by the subcutaneous one.

Whereas treatment before the season is the method of choice in most instances, it should at times be supplemented by coseasonal and perennial treatment. As Vaughan⁷ and others have emphasized, the injection of small amounts of pollen extract daily or every other day during the season frequently produces great amelioration of symptoms not only in patients who first present themselves during the season, but also in those who have not been improved by preseasonal inoculations.

The rationale of coseasonal treatment by the short interval method is well supported by what we know of the mechanism underlying induced hypersensitiveness produced in animals by the inoculation of antigenic substances. Multiple injections of a protein antigen given to a normal animal at short intervals causes the formation of antibodies in much larger quantities so that when the same antigen is given to such an animal later the excess of circulating antibody combines with it and thus prevents the contact of antigen with

the sensitized cells. It is not unlikely that an increased tolerance to the inhalation of large amounts of pollen protein during the season may be accomplished by bringing about a similar state of desensitization in the hay fever patient.

A further improvement in the management of these patients has been recommended by Brown.⁸ This worker suggests that the hay fever patient be treated throughout the year so that the tolerance to pollen protein which has been built up by preseasonal and coseasonal treatment be maintained. This makes it unnecessary to start the treatment each year as though the case were a new one. The chief precaution essential in using the annual treatment is the careful observation of the patient after each injection while the interval between treatments is being lengthened or when a change is made from an old extract to a new one. In a limited experience with this procedure we have been impressed with the uniformly good results as compared with those obtained by the preseasonal or coseasonal methods alone or in combination. Because of our meager knowledge of the immunology of hay fever, it is as yet impossible to say whether or not perennial inoculations produce a more prolonged state of desensitization of the body cells.

Concerning the duration of hay fever treatment there is as yet no agreement among physicians. However, as time passes and the number of patients treated thoroughly and repeatedly for many seasons accumulates, it becomes possible to formulate some idea as to the period of treatment necessary to achieve more permanent relief. Henry⁹ states that successful desensitization for three to five seasons frequently gives permanent immunity; whereas Walker,¹⁰ in the analysis of a series of one hundred "apparently cured" hay fever cases, treated only preseasonally, has been successful in obtaining freedom from symptoms for three or more years.

SAMUEL H. HURWITZ, San Francisco.

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Medicine

A Method of Obtaining Blood of Small Infants for Examination.—In a review of the literature, I find no mention made of a technique that I have found simple and adequate in collecting the blood of small infants for serological examination. Puncture of the longitudinal sinus seems to be falling into disuse. Nor does the jugular vein always offer an easy avenue of approach. One also often finds it difficult to obtain an adequate supply of blood from a puncture made in the heel. The use of one of the veins of the cubital fossa proves an easy method in the hands of the experienced, but is frequently a time-consuming procedure.

The superficial temporal vein I have found readily accessible. The vein may be easily occluded as it passes over the zygomatic arch by pressure of the finger of an assistant. With the struggling of the infant the vein becomes quickly more tensely filled. The hair may be shaved over a space of about one centimeter in diameter and the skin sterilized with alcohol. The use of iodine in sterilizing the skin renders the vein less easy to see. A three-quarter-inch needle, twenty-three gauge, I have found most serviceable, and the use of a syringe of not too large bore eliminates the annoyance of air-bubble formation from too great suction.

CHRIS R. HALLORAN, Los Angeles.

Urology

A Consideration of Certain Phases of Pyelitis.—Recent literature on the subject of pyelitis is so voluminous that it seems worth while briefly to emphasize a few of the points that are coming into prominence at this time.

Focal infection and urinary stasis are common causes. Stasis connects pyelitis closely with stricture of the ureter, but the latter can exist without pyelitis. Hunner states that 30 per cent of ureteral strictures have normal urinary findings, while one report records 69 per cent of sterile urine cultures in this condition.

The pathology is indicated by a variety of names: pyelitis, pyelocystitis, and pyelonephritis. The inflammation varies from a catarrhal one of the mucous membranes to a true nephritis which may destroy the kidney. Focal infection not only causes the infection but it may also cause the obstruction which results in urinary stasis—most often a ureteral stricture.

The Mayo Clinic reports two thousand cases of pyelonephritis in which stone was present in only thirty and only twelve required operative removal.

Hematogenous infection is most common, but other routes of infection probably frequently occur, especially the ascending route. Because of this, pyelitis is generally bilateral. In addition, there is a distinct type of unilateral pyelonephritis which sometimes demands nephrectomy. This is usually the result of septic infarction and will not be further considered.

The disease is most frequent at the extremes of life and in the female sex. It occurs in girls three times as often as in boys; in women twice as often as in men. From fifty to sixty, the occurrence in men and women is equal, due to an increase at that age of lower urinary tract obstruction in the male. Early female preponderance will be brought out in a consideration of the clinical types of which we will limit ourselves to three forms.

THREE FORMS OF PYELITIS

Neonatal pyelitis occurs in the new-born and is carried under this heading during the first month of life. It is not so uncommon. Males are more commonly found in this group than females. In twenty-one cases there were sixteen males. The organisms found are usually other than *Bacillus coli*. The symptoms are largely gastro-intestinal and often begin on the second or third day of life. Hence the true condition is overlooked and much useless interference with the diet results.

That the sexes are about equally involved and that *Bacillus coli* is uncommonly found, distinguish neonatal pyelitis from the pyelitis of infancy and point to a bacterial invasion at the time of birth or even to an intra-uterine infection. Treatment by water and alkalis usually results in a cure.

Pyelitis of Infancy.—In contradistinction to neonatal pyelitis, this form is predominantly one of females and of infection with the *Bacillus coli* group. Gastro-intestinal disturbances of a diarrheal type are so frequently an antecedent cause as to give the disease at times a seasonal character. It seems probable that infection is partly of hematogenous origin and, as such, occurs equally in both sexes; but the formation of the female genitalia, favoring vaginal soiling with feces, points toward an ascending infection as the cause of the predominance in female infants.

The upper respiratory tract is second in importance as a portal of entry for infection. Even here, *Bacillus coli* soon becomes a concomitant or a surviving organism or it may be that respiratory tract infections simply lower resistance and permit *Bacillus coli* to obtain a foothold. The rôle of infection in the pyelitis of infancy is easily grasped. Not so that of stasis; but stasis is present in some 80 per cent of these cases. In many, or most of them, the obstruction is probably self-engendered. The products of infection, together with the local reaction, cause blocking at the narrowest point, generally the ureteropelvic junction. This type usually recovers without instrumentation, but a permanent scarring and narrowing may follow. Hunner states "chronic pyelitis in children is probably subject to the same factors that govern the disease in adults. Inadequate drainage is the chief factor in chronic pyelitis, and ureteral stricture is by far the most common cause of poor drainage." Hunner's views may appear radical, but, considering the poor end-results that follow pyelitis of infancy, they are probably justified. The disease is extremely common. Eighty per cent of nursing

babies are said to have had it and 20 per cent have relapses. One series of sixty cases is reported with only twenty cured. The disease is far more frequent than is recognized, and, while a symptomatic cure is usually obtained, with the subsidence of acute symptoms, the establishment of a chronic pyelitis frequently follows. The importance of this will be seen in the consideration of pyelitis of pregnancy. Routine treatment includes water, by all odds the most important aid; alteration in the reaction of the urine, and urinary antisepsis together with removal of foci of infection. Severe or relapsing cases should not be allowed to drag along without urological examination and treatment. Such examination will occasionally disclose tuberculosis, for instance, which is not so rare at this period of life. Relief of obstruction by means of ureteral catheterization, usually with addition of pelvis lavage with silver nitrate, will give immediate good results. While it may have to be repeated one or more times, it is surprising how often a cure results from the first treatment. Age is no bar to cystoscopy and ureteral catheterization. It can be done at any age and in either sex.

Chronic pyuria with or without recurring attacks of pyelitis is a positive indication for cystoscopy. Every effort should be made to obtain a normal urine before the child is discharged as cured.

Pyelitis of Pregnancy.—The first point of interest is the relationship of this type to the pyelitis of infancy. It is becoming increasingly evident that a large percentage of the cases of pyelitis of pregnancy have had previous attacks of pyelitis of infancy, usually associated with some degree of urinary obstruction. It seems reasonable to conclude that such cases are predisposed to pyelitis of pregnancy. This is an added reason for the thorough treatment of pyelitis of infancy. The second point of interest is the almost universal presence of dilated ureters in pregnancy as a result of the pregnancy itself. One autopsy series of sixteen cases shows dilatation present in all; bilateral in twelve and unilateral in four. Another series of three hundred autopsies, including both pregnancy and the puerperium, shows dilatation of the upper urinary tract present in 30 per cent. Clinically, 80 per cent of pregnant women have residual urine in the ureters; but only 10 per cent of these have pyelitis. The cause of this dilatation must be the enlarging uterus. If this dilatation takes place in the presence of a residual pyelitis of infancy, it is only natural that the old infection will flare up. Many cases must be fresh infections of the residual ureteral urine which results from the pregnancy itself. *Bacillus coli* is again the common organism and checks with the aphorism that a pregnant woman is a more constipated biped and a parturient woman a most constipated one. It is usually stated that the condition is generally unilateral, and most often on the right side; but this is more apparent than real. Kretschmer's careful bacteriological study shows: bilateral, twenty; right only, five; left only, none.

Considering the frequent presence of an organic factor in the production of stasis it is important that these cases be followed up after the termination of pregnancy to make sure that a chronic condition is not left untreated or uncured.

Differential diagnosis from appendicitis is frequently necessary.

Urological treatment should not be too long postponed. Ureteral dilatation, with pelvic lavage, usually results in rapid amelioration of symptoms. Sometimes the use of an indwelling ureteral catheter is desirable. It may be left in place for many days if necessary. It should never be necessary to terminate a pregnancy because of pyelitis.

In conclusion, we wish to emphasize the need of using all available means to really cure every case of pyelitis.

E. J. EYTINGE, Redlands.

Medicine

Psittacosis.—The number of cases of "parrot fever" which have occurred in this country during the past few weeks has not been large enough to cause serious concern, but the novelty of the malady is such that the reports have had a high news value.

The disease has been known for at least fifty years, and is described in all the standard textbooks dealing with tropical medicine. Perhaps the earliest description of the disease was written by Ritter in 1879, at which time he called attention to the factor of contact with an infected parrot. It was defined as "a fatal specific epizootic disease" affecting parrots, and liable to be communicated to human beings. An incubation period of from seven to twelve days ushers in a typhoid-like condition sometimes beginning with a chill, though more often the onset is insidious. The duration averages from fifteen to twenty days unless pneumonia develops. This is a frequent and much to be dreaded complication. Almost all fatalities occur in pneumonic cases, where the mortality is found to have been between 30 and 40 per cent in some outbreaks.

Among recorded epidemics, the European one of 1892 would appear to be the most extensive. A shipment of 500 parrots had been made from South America to Paris. Of these, 300 died on the journey, but in spite of this the surviving 200 were sold. Within a month forty-nine cases of psittacosis were reported, with sixteen deaths.

During the next ten years nine smaller epidemics occurred in Europe, and one in New Hampshire, U. S. A.

During the present winter Berlin has reported more than twenty cases, with three deaths, and fifteen cases have been reported from other German cities. On January 16 the importation of parrots into North Germany was prohibited, the embargo to be effective immediately. On January 24 the importation of parrots from South America was forbidden by President Hoover on

the recommendation of Surgeon General Hugh S. Cumming. Not only the present epidemic but all previous ones, both in Europe and America, have been traced to parrots imported from South America.

The difficulty of an early diagnosis is recognized, and one textbook naïvely remarks: "The diagnosis is to be made by the discovery of sick parrots in houses in which people are suffering from typhoid-like fever and pneumonia."

MARY L. NEFF, Los Angeles.

Gall-Bladder Disease Causes Most "Stomach Troubles."—"The most frequent single cause of 'stomach trouble' was disease of the gall bladder," Dr. Walter C. Alvarez of the Mayo Clinic, Rochester, found in five hundred consecutive cases of indigestion or abdominal distress reviewed before the American College of Physicians meeting at Minneapolis.

"Actual disease of the stomach could be demonstrated in only twelve of the five hundred cases," Doctor Alvarez stated. "As Dr. W. J. Mayo long ago pointed out, the stomach often serves as a fire box to call attention to a conflagration elsewhere in the body. In many of these patients the fire was far away, in the brain, the teeth, the thyroid, lung, heart, spine, kidney, bladder, uterus, or blood vessels."

Definite disease of the digestive tract, such as inflammation of the gall bladder, ulceration or cancerous changes in the intestines and stomach, or appendicitis was found in 175 cases or one-third of the total number.

"In forty-three cases the indigestion was thought to be due primarily to nervousness and in fifty more it appeared to be due to the congenitally frail, sensitive, or psychopathic make-up of the patient." Doctor Alvarez said. "In a number of cases it was due to the fact that husband and wife were at swords' points and the meals were being eaten to the accompaniment of bitter words. Often the patient was so nervous, and querulous, or so badly upset by fatigue and worry that it was hard to know what significance to attach to the symptoms, and the operation which would have been prescribed for a strong, phlegmatic person with the same complaints was hardly thought of."

Some of the patients complaining of stomach trouble were relieved by a simple change in diet. In other patients the cause of the trouble was thought to be in the nerves or brain, with the stomach distress merely secondary. For these patients, operation was not advised. Doctor Alvarez said further:

"In many cases the inability of the physician to make a positive diagnosis was due to the unwillingness of the patient to remain for a sufficient time under observation or to return when new symptoms appeared. Let us say that a woman has an attack of acute indigestion with pain in the upper abdomen and vomiting. It looks to her and her physician as if she must have eaten some spoiled food. But let her have four such attacks in six months with perhaps a little jaundice after one of them and it becomes obvious even to a layman that the biliary tract is probably diseased. The surest way in which to get a diagnosis is to return each time to the same physician so that he can see the complete picture of the disease; the surest way in which to get poor treatment is to change physicians with each attack and to show each one only one short puzzling episode in a long-lasting, slowly developing chronic disease."—*Victor News*.

TRANSACTIONS OF THE FIFTY-NINTH ANNUAL SESSION CALIFORNIA MEDICAL ASSOCIATION

DEL MONTE, CALIFORNIA, APRIL 28-MAY 1, 1930

This caption includes two committee reports, not included in the "Pre-Convention Bulletin" excerpts as printed in June issue of California and Western Medicine, pages 423 and 427.

HEALTH INSURANCE—A PRELIMINARY SURVEY*

By JOHN H. GRAVES, M. D.
San Francisco

Acting upon your suggestion your Committee on Medical Economics has devoted its attention exclusively to the question of health insurance; and has, in the time allotted, been able only to investigate very incompletely a very few of the many angles of this most complex question.

OUTLINE OF THE SURVEY

In order to supply you with the information upon which you might take some action, your committee has made the following studies:

1. Experience of foreign countries in health insurance.

2. Investigation of the health at time of original examination, and the diseases and their duration, of five millions of men enlisted by the United States for service in the World War.

3. Study of the incidence of illness, duration of the disability, and the cost of hospitalization and treatment of various selected groups on manufacturing, industrial and transportation activities.

4. Investigation of certain mutual benevolent hospital associations that were founded and conducted with money secured by: endowments; entrance or initiation fees; and by monthly payment of dues.

5. Frequency, duration, and character of illness of certain groups of children of school age.

6. The cost of sickness to three thousand families from January 1 to July 1, a period of six months. The cost of sickness to these families, which range in number from one in family to ten in family, have been segregated into the following items: physicians' fees; drugs; dentists; hospitals; oculists; operations; nurses' fees; dispensaries and extra household expenses.

These studies have been condensed and epitomized as much as is consistent without loss of facts secured.

PRESENTATION OF SPECIAL STUDIES

Study of the Experience of Foreign Countries in Health Insurance.—Various plans for voluntary insurance have been abandoned, one by one, for types made compulsory under the law.

The standard of living and the standard of medical service is so different from those in the United States that studies of these appear to be of little value.

I have chosen the experience tables on which the health insurance tables of Great Britain were founded, although here again we find standards so different from those in our own country that they cannot be accepted as a guide. Between the ages of twenty and twenty-five years, 25 per cent are sick each year. The average duration of the sickness is three and seven-tenths weeks, which makes an average of one week for each person insured.

Between the ages of sixty and sixty-five, 40 per cent of all insured suffer from illness annually; and

the duration of the illness at that age is sixteen weeks of illness annually for each person of that age insured.

I quote these figures to call to your attention how the duration and frequency of illness increases as the age of the insured advances.

While I have tables of all ages up to eighty-five years of age, it seems unnecessary to quote them because what has just been stated will illustrate clearly the futility of making calculations of medical costs of illness from records gained from certain selected groups of employees of various industries which will be given later.

1 1 1

Study of Medical Care of Enlisted Americans in World War.—Statistics available as to the percentage, character, and duration of illness of the five million men enlisted by this country for service in the Great War are again of little value.

The conditions under which these men lived, so different from conditions during peace times, coupled with the fact that it was during their period of service that the world-wide epidemic of influenza occurred, make deductions of value impossible.

The fact that it took thirty thousand beds in 1924 in government hospitals to care for veterans entitled to treatment, for your purpose means nothing, because the government has no record of the sicknesses of those who served during the war unless they come under supervision when ill.

There is, however, one outstanding fact to be gleaned from our experience during the war that appeals to your committee as being peculiarly significant when considering a voluntary noncompulsory insurance plan, and that is this: that while every American soldier received automatically his enlistment compensation insurance, and life insurance had to be applied for, yet 90 per cent of all those enlisted paid for and received government life insurance; and as late as 1924 there were still 885,000 of those policies in force.

This would indicate that if the necessity for sickness insurance were properly presented in a forceful manner to the people of America that voluntary insurance would stand much better chance of success in this than in any other country in the world.

1 1 1

Study of Illness in Industry.—The frequency and duration of illness of employees in large industrial enterprises varies considerably with the nature of the work, location of the plant, and the age and sex of those employed. In a ten-year period, the male employees of the Edison Electric Illuminating Company of Boston had, on an average, slightly over one illness that caused absence from work per person per year for male employees, and two per year for females. In contrast, a large manufacturing concern had an average of over two cases of illness per person per year.

During a three-year period the 16,000 employees of the B. F. Goodrich Company, largely men, had an annual rate of illness per person of over one and a half cases of disabling sickness per annum.

Studies made in different places indicate that adult males lose seven to eight days per year per person, and that females lose eight to twelve on an average per year on account of sickness.

* This is the report of the Committee on Medical Economics which is referred to in the June issue of California and Western Medicine, page 427.

See also report of Dr. John C. Ruddock, which follows. Also special article in this issue by Dr. Rexwald Brown on "The Business of Medicine." These three articles interlock.—Ed.

Of 570,000 people in industrial communities studied by the Metropolitan Life Insurance Company, roughly two per cent were ill on the average of a single day.

On the basis of the lowest rate, for disabling illnesses, made by the United States Public Health Service, there would be about 130,000,000 cases of disabling illnesses in the United States every year, and if nondisabling illnesses be added, this figure would be tremendously increased.

On the basis of population, there would be in California over 5,000,000 disabling illnesses and probably 10,000,000 of nondisabling illnesses in this state each year.

Study of Mutual Benevolent Hospital Associations.—These associations range from the all too frequent fly-by-night concerns, controlled by one man or a small group, sometimes laymen, sometimes physicians, without material resources, operated for a profit, and guaranteeing treatment to the sick and hospitalization when necessary—to the old established institutions, philanthropic in character, with liberal endowments, extensive hospital properties, and with hospital staffs of reputable men.

The first type is familiar to all and has little or nothing to commend it. The second type, examples of which were established in this state as early as 1851, still conduct large modern hospitals with excellent staffs, present many features that have great interest that bear directly upon the question that you are considering. I will quote from carefully studied records of one such institution the following figures:

During the years of 1928 and 1929 there was an average membership of 9248, 70 per cent of whom resided in the city and county where the hospital is located, and a very large percentage of this 70 per cent unquestionably sought the services of their hospital or its out-patient department when ill.

During the two years mentioned, 2803 of the members were at some time patients in the hospital. The average stay in the hospital for a patient was 23.5 days and the cost per case was \$103.

In the out-patient department there were 2400 visits to the x-ray department, 48,000 visits to the pharmacy, 3480 visits to the laboratory, and 7668 visits to the hydro- and electrotherapeutical departments.

The cost for hospitalization was \$289,681; and the cost for the out-patient department was \$90,642.

Administration expenses were \$21,555.83; with a very small charge for depreciation, taxes and insurance; \$419,378 was the total cost for two years' medical care, treatment and hospitalization for 9248 members. This means that it costs the organization \$21.61 each year per member.

To further explain and analyze these figures, I will state that this particular society accepts into its hospital large numbers of pay patients who are not members of the organization and that these non-member patients are charged prices that give to the hospital a substantial profit.

I wish to emphasize that an examination into the accounting system shows that charges for the operation expenses are entered against the paying portion of the hospital so as to reduce the cost for the care of the members of the society wherever possible. In other words, the sum \$22.61 per capita per annum would be considerably larger if the hospital were operated for members only.

I wish further to emphasize that this sum does not include any fees to the medical profession except a few modest salaries paid for supervision of x-ray and pathological departments, together with the resident physician's and interns' salaries, and possibly one or two very small staff salaries, as the staff as a rule serves without financial remuneration. No obstetrical service is given to members.

The outstanding fact of value to you is that this institution, if it charged \$22.61 per person per annum for medical care without medical or surgical fees,

would soon be bankrupt were it not for the fact that it has a return from investments from its endowments and gleans a profit from outside non-member pay patients.

Study of Illness in Children of School Age.—The frequency and duration of illness among children of school age varies greatly. Your committee has not been able to secure accurate data in California, but in some eastern communities they average about seven disabling days of sickness per school year (180 days); whereas in some communities in the Middle West children of school age appear to have disabling sicknesses about six per cent of all days of the year.

Study of Cost of Illness in Group of Three Thousand American Families.—I am able to present a record of the cost of sickness to 3281 American families over a period of six months from the first of January 1929 to the first of July 1929.

These families are all above the poverty line, but cannot be considered in any way as representing financially the average California family. These families range, in numbers per family, from one to nine and over, and the expenditure being for a period of six months will have to be multiplied by two to secure the estimated annual expenditure.

Of the 3281 families studied there were:

198 families that made no expenditure for sickness.

1113 families spent less than \$25.

654 families spent from \$25 to \$49.

655 families spent from \$50 to \$99.

397 families spent from \$100 to \$199.

135 families spent from \$200 to \$299.

55 families spent from \$300 to \$399.

36 families spent from \$400 to \$499.

38 families spent \$500 or more.

Remember that these are expenditures for six months only. Of these families there were twenty with only one in the family and the average expenditure for sickness for six months was \$72, which would be \$144 per year per person.

One hundred and twenty-eight families, with two in the family, expended \$82 for six months, or \$164 per year.

Four hundred and fifty-five families, three in the family, expended \$70 in six months, or \$140 yearly.

Six hundred and eighty-five families, four in the family, expended \$62 in six months, or \$124 yearly.

Six hundred and twelve families, five in the family, \$73 in six months, or \$146 yearly.

Four hundred and sixty-four families, six in family, \$60 in six months, or \$120 yearly.

Two hundred and ninety families, seven in the family, \$80 in six months, or \$160 yearly.

One hundred and ninety families, eight in the family, \$93, or \$186 yearly.

Ninety-eight families, nine in the family, \$50, or \$100 yearly.

One hundred and twenty-one families, ten and over in the family, \$82 in six months, or \$164 yearly.

The average cost per person ranges from \$6.64 to \$75.63.

The expenses incurred by these families were arranged as follows:

Twenty-three hundred and sixty-eight employed a physician during the period of six months and the fees totaled \$98,359, or a total of \$37 per family for six months, or \$74 per annum for physicians' fees.

Drug bills for 2755 of these families totaled \$29,607, or \$11 for six months, or \$22 per annum.

There were 988 of the families who paid \$18,108 or \$18 per family to the dentist, or \$36 per annum.

TABLE I. SUMMARY OF INCOMES OF PHYSICIANS IN THE UNITED STATES

	Gross Income	Net Income	Expense of Practice	Savings	Living Expenses	No. of Years in Practice	No. in Family	Doctors Who Own Homes	Doctors With Home Office	Ratio of Specialists to General Practitioners
Rural practitioners	\$5,727	\$3,284	\$2,443	\$1,257	\$2,027	19.	3	72%	36%	1 to 34
Doctors in towns of 5000 population	7,513	4,800	2,713	1,549	3,251	22.5	5	80.9%	17.3%	1 to 3.6
In towns of 10,000 to 25,000	10,207	6,369	3,838	2,706	3,663	19.5	5	85.6%	10.2%	1 to 2
In cities of 50,000 upward..	11,379	7,022	4,357	2,639	4,383	19.2	3	72.3%	9.9%	1 to 1.7
In metropolitan centers.....	11,227	7,125	4,102	2,203	4,922	15.	3	39.2%	29.9%	1 to 1.3
In industrial centers.....	9,921	6,235	3,686	1,468	4,767	19.8	4	78.3%	30%	1 to 2.5
Average for U. S.....	\$9,329	\$5,806	\$3,523	\$1,970	\$3,835	19.2	4	71.4%	22.2%	1 to 7.5

Four hundred and forty-seven of these families paid hospital bills of \$28,708, or \$60 per six months, or \$120 per annum per family.

Three hundred and eleven families paid the oculist \$4815, or \$15 per six months, or \$30 per annum.

There were 212 operations, the fees for which were \$15,779 which was an average of \$74 per family for six months, or \$148 for one year.

Two hundred and twelve families paid nurses' fees of \$8766, or \$41 per family per six months, or \$82 per annum.

Extra household expenses on account of illness in 1886 families averaged \$21 per family.

As will be seen from these figures, families of one, two, or three people expend more for sickness than families containing two or three times the number of persons.

It is not claimed that this in any way represents the cost of adequate care, but does give an idea as to the sums actually expended by people in extremely modest circumstances.

When we stop to consider that of all people who have attained the age of twenty years, that 89 per cent had measles, 70 per cent have had whooping-cough, 72 per cent mumps, 52 per cent chickenpox, 11 per cent scarlet fever, 10 per cent diphtheria; that there are 2,000,000 births in the registration area alone, of the United States; that on an average day there are 350,000 confined in hospitals for nervous diseases; that syphilis and gonorrhea cause one person out of a hundred to place themselves under the care of a physician; and that in a recent year there were 36,000 cases of smallpox, you will understand how futile it is to base any plan of sickness insurance upon the experience of industrial organizations furnishing treatment to adult males practically none of whom would be treated for any of these diseases or conditions.

Referring again to the cost of sickness in the three thousand families; if these figures are analyzed they show that in families up to four persons in number the actual cost per person was \$76 per year. This in families of very modest incomes and the adequacy of the treatment questionable. Further it shows that the single individual spends about \$145 per year for sickness which would be a little less than five per cent of a \$3000 annual income.

It is to be remembered that these families are all urban families in the immediate reach of physician, hospital, nurse, and all the agencies that are brought into use for the scientific treatment of disease, and it is well to remember that the towns and cities of the great central valleys of this state in many in-

stances are 150 to 200 miles distant from coast-line towns possessing medical facilities along the eastern border of the state; and that in the hilly and mountainous regions between the valleys and the coast, and between the valleys and the eastern borders of the state, there are many people who live from thirty to seventy-five miles from the nearest doctor; that to reach these people when ill, particularly in the winter time, requires travel over roads that are difficult, to points that not infrequently cannot be reached by automobile.

Treatment and care of such a patient under these conditions would add tremendously to the expense and could not be compared to that of the city dweller.

As the principal agitation for better medical service at lower costs is on account of the claimed inability of those of moderate income, the so-called white collar brigade, to meet the expense of illness, your committee sought to ascertain how many people in the State of California would come under this classification. Consulting the income tax department at the Custom House, we found that there were only 315,000 people in the State of California who filed statements of income, and that of this number only 185,073 pay any tax.

Of the 315,566 returns made, there were 12,585 that showed a net income of under \$1000.

There were 75,500 who showed net incomes of over \$1000 and below \$2000, and

There were 71,000 that showed incomes above \$2000, but below \$3000.

This would make, according to the income tax returns, about 160,000 citizens in the state whose net incomes are below \$3000.

Of course such figures are absurd, and yet there are many people of great wealth whose net income, after all deductions are made, in any single year, may be less than nothing.

As the California State Bureau of Labor Statistics is said to keep no figures on the employees of enterprises that employ less than five people, any statistics for your purpose on the size of salaries in the state would prove as useless as the figures from the Federal Income Tax Bureau just quoted.

One of the plans submitted to your committee that has a possible solution of the problem of furnished adequate medical care to the individual of small income at a price that he could afford to pay was presented by a member of your Council, Dr. F. R. DeLappe of Modesto.

The chief feature of the plan suggested consists in making each County Hospital an open hospital for all reputable members of the medical profession.

The County Hospital would establish a department, or preferably a separate building, where a charge of \$3 per day would be made for hospital care. The patient would be attended by his private physician and the physician would submit a bill for fees, which would be one-half the amount customarily charged.

The bill would be submitted to and approved by the accounting and welfare departments of the hospital and then passed on to the patient for payment.

If it is a real condition that confronts us, this might be a very practical way to meet it, and after consultation with various interested people and heads of health departments, we submit it for consideration and discussion.

In view of the fact that the National Committee on the Cost of Medical Care has only published existing data that it has collected and that its researches for facts concerning this problem hitherto unknown, is only fairly well begun, your committee feels that the data they will be able to furnish as their work progresses will, when received, be of the greatest possible assistance in the development of a successful system.

Statistics on physicians' incomes are included. (Published by courtesy of editors of *Medical Economics*):

From the all too meager facts that we have been able to gather, it appears to your committee that any action toward establishing a sickness insurance plan in the near future should first be tried out in some selected town or county; second, charge per capita per annum for those whose incomes range between \$1000 and \$2000 per annum should be far in excess of any sum so far considered as being practical.

In conclusion, as chairman of the Committee on Medical Economics, I desire to express my appreciation of the Council's liberality and confidence in authorizing me to appoint subcommittees and expend sums necessary to accumulate needed information on this subject.

I have not availed myself of your liberal offer because I did not feel warranted in expending the society's funds without greater assurance that the data collected would prove of real value and be put to practical use.

THE CALIFORNIA "CLINIC" PROBLEM

By JOHN C. RUDDOCK, M. D.

Los Angeles

At the fifty-eighth annual session of the California State Medical Association, held at Coronado May 6 to 9, 1929, a new constitution and by-laws was adopted for the Association. Chapter 8, Section 1, of the by-laws provides for the formation of certain standing committees, which were appointed by the Council at its one hundred and eighth meeting with the consent of the House of Delegates. This committee, consisting of Dr. Gayle G. Moseley, Redlands, Dr. Walter B. Coffey, San Francisco, and Dr. John C. Ruddock, Los Angeles, have made a survey for the purpose of ascertaining facts and figures relative to the insidious growth in the various communities of the state of the number of clinics, the part that they play in the social structure of the community, and the cost of that service to the community as it affects medical economics.

HOW THIS SURVEY WAS MADE

This survey has been rather a stupendous task and the data that we have gathered has become rather difficult because of the interlacing of this clinic structure with other branches of medicine. The present survey, which this committee is very pleased to re-

port, is as complete as is possible without a paid worker investigating personally each clinic. This investigation was done by mailing approximately 1500 questionnaires to various hospital groups, clinics, and organizations working under such a name, such as groups of doctors, and various medical service groups. Early in the investigation, however, it was necessary to subdivide the work, as the field was altogether too large for one investigator to complete in the allotted time. This grouping is as follows:

Group 1. Charitable clinics.

Group 2. Industrial clinics.

Group 3. Commercial clinics.

Industrial medicine being a particular and specialized branch of medicine, under the control of the Industrial Accident Commission and regulated by the State Compensation Insurance Laws, was purposely left out of this survey, in order that confusion of this branch of medicine with the clinic situation would not be made. This survey, therefore, will include statistics obtained from charitable, semicharitable, private, and commercial clinics operated now in the State of California. Unfortunately, there are no means by which we could obtain statistics, data, costs, and other figures from private clinics, because they refused to give them to us. There are many clinics in this state—charitable, semicharitable, private, and commercial—that are run under the supervision of osteopaths, chiropractors, naturopaths, and other cults, who have deliberately refused to give us any information whatsoever, with the statement that "we are not interested in any of the activities of the California Medical Association." However, we are able to give you figures on a sufficient number of clinics and clinic activities in the State of California so that a basis of costs may be approximately ascertained.

WHAT IS A CLINIC?

Definition of Clinic.—No better definition has been found than that in the Statutes of the State of New York, which is as follows:

"For the purpose of this article a 'dispensary' is declared to be any person, corporation, institution, association, or agent, whose purpose it is, either independently or in connection with any other purpose, to furnish at any place or places, to persons non-resident therein, either gratuitously or for a compensation determined without reference to the value of the thing furnished, medical or surgical advice or treatment, medicine, or apparatus, provided, however, that the moneys used by and for the purpose of said dispensary shall be derived wholly or in part from trust funds, public moneys, or sources other than the individuals constituting such dispensary and the persons actually engaged in the distribution of charities of said dispensary."

There is likewise a definition in the Statutes of the State of Massachusetts:

"For the purpose of this act a 'dispensary' is defined to be any place or establishment, not conducted for profit, where medical or surgical advice or treatment, medicine or medical apparatus is furnished to persons nonresident therein; or any place or establishment, whether conducted for charitable purposes or for profit, advertised, announced, conducted, or maintained under the name 'dispensary' or 'clinic' or other designation of like import."

1 1 1

Purposes and Development of Clinics.—There are two distinct purposes for which dispensaries have been developed:

1. To collect material for the teaching of clinical medicine.

2. As a means of furnishing free treatment to the indigent poor.

The first group, the teaching clinics, are a small group and their numbers run hand in hand with the number of medical schools. It is hardly consistent for a physician who has enjoyed the benefits of a thorough medical education, the average cost being about \$10,000, to object to a clinic connected with a medical school on the ground that such a clinic lessens the financial returns from private practice.

In rural districts or small cities the poor form a relatively small percentage and are not segregated. Here, each individual physician assumes a certain share of the free work in the community without allowing this to become an overwhelming burden. As the cities have grown with the drift of population to industrial centers, the relative number of dependents has increased, and, what is more important, they have collected in certain quarters or districts. The physicians in these districts would be overwhelmed by charity work if they had to assume the entire burden, and likewise, if these sick poor were forced to pay for medical treatment, they would in turn be forced to a condition of living that would in itself tend to aggravate their physical condition. This is the underlying factor in the development of clinics and medical dispensaries. In other words, they are an attempt to meet the results of economic conditions. The system is in itself inherently wrong, for often persons are forced by it to accept private charity for what in reality is a condition for which society as a whole is to a large extent responsible. It should not be necessary for a few individuals and the medical profession as a whole to bear the burden of these economic conditions.

Outgrowth.—The outgrowth from the above purposes for which clinics have been organized has led to the development since 1910 and to the organization in this state of a large number of associated clinic groups. These clinics are maintained by hospitals, governmental and private health organizations, industrial and commercial establishments, trade-unions, courts and prisons, and charitable agencies. Besides these are "pay clinics" and "group clinics." In these two last named are gathered together a man with experience in general diagnosis and one or more specialists, with more or less complete equipment for providing medical service, all under single administrative control. While "group clinics" are not usually organized for the purpose of reducing fees, "pay clinics" charge fees approximately covering the cost of the service, including remuneration for the physicians. Quoting from the Committee on the Cost of Medical Care, Dr. Ray Lyman Wilbur, chairman, states: "There has been a tremendous growth in the number of clinics from about six hundred in 1910 to almost six thousand in 1926."

Somewhat different from the clinic is the health center, which promotes and coördinates medical service and related social service and educational work. It brings together under a single roof a large number of previously scattered activities for the prevention of disease, and the promotion of health. In our large communities there have been developed a great number of health centers. These have been both under city and county control. Their primary function is educational health surveys, and irradiation of communicable disease. They offer to the public free of charge services in regard to:

1. Treatment of venereal diseases.
2. Diagnosis and treatment of tuberculosis.
3. Advice in regard to baby welfare.
4. Vaccinations against smallpox, diphtheria, scarlet fever.

5. Dental care.

6. General advice in regard to all health problems.

CALIFORNIA LAWS REGARDING CLINICS

Licensing of Clinics.—In the State of California there is no law or statute that determines, specifies, or controls the number or the kind of clinics. Any individual in this state may start a clinic at any time he desires for any purpose that he may desire at any place that he may desire. This clinic may be owned, controlled and standardized by any lay individual. It might be of interest to note that all regulation of existing clinics is done by their respective boards of directors. Therefore, we have as many clinics doing as wide a variety of medical work as we have varieties of boards of directors. There is no set standard of any kind adopted or followed by the clinics of this state. This is not strange when compared with the rest of the nation.

In order to secure information concerning the state laws governing the licensing and control of out-patient departments of hospitals, clinics and dispensaries, letters were sent to all the state departments of health. Replies have been received from thirty-nine states. Thirty-six of these have no state laws regulating the licensing and supervision of out-patient dispensaries. New York, Ohio, and Massachusetts, all have regulating statutes for clinics. In New York all the dispensaries are under the supervision of the State Board of Charities, which has power to license them and to regulate their management. In Ohio the State Department of Health has authority to license and require reports from all hospitals and clinics. In Massachusetts a law enacted in 1918 authorized the State Department of Health to license all dispensaries and to establish regulations concerning them.

A copy of the General Acts of Massachusetts, 1918, Chapter 131, page 106, is as follows:

"Chapter 131. *An act to require that dispensaries shall be licensed by the State Department of Health.*

Be it enacted, etc., as follows:

Section 1. For the purpose of this act a dispensary is defined to be any place or establishment, not conducted for profit, where medical or surgical advice, or treatment, medicine, or medical apparatus is furnished to persons nonresident therein; or any place or establishment, whether conducted for charitable purposes or for profit, advertised, announced, conducted, or maintained under the name 'dispensary,' or 'clinic,' or other designation of like import.

Sec. 2. It shall be unlawful for any person, firm, corporation or association, other than the regularly constituted authorities of the United States, or of the commonwealth, to establish, conduct, manage or maintain any dispensary, as above defined, within the commonwealth, without first obtaining a license as hereinafter provided.

Sec. 3. Any person, firm, association or corporation, desiring to conduct a dispensary shall apply in writing for a license to the State Department of Health. The application shall be in the form prescribed by the said department, and shall be uniform for all schools of medicine. There shall be attached to the application a statement, verified by the oath of the applicant, containing such information as may be required by the said department. If, in the judgment of the said department, the statement filed and other evidence submitted in relation to the application indicate that the operation of the proposed dispensary will be for the public benefit, a license in such form as the said department shall prescribe, shall be issued to the applicant. Licenses shall expire at the end of the calendar year in which they are issued, but may

be renewed annually on application as above provided for their initial issue. No license shall be transferable except with the approval of the said department. . . . The fees shall be paid into the treasury of the commonwealth.

Sec. 4. The public health council of the said department shall make rules and regulations, and may revise or change the same, in accordance with which dispensaries shall be licensed and conducted, but no such rule or regulation shall specify any particular school of medicine in accordance with which a dispensary shall be conducted.

Sec. 5. The commissioner of health and his authorized agent shall have authority to visit and inspect at any time any dispensary, in order to ascertain whether it is licensed and conducted in compliance with this act and with the rules and regulations established hereunder. After thirty days' notice to a licensed dispensary and opportunity to be heard, the said department may, if in its judgment the public interest so demands, revoke the license of any dispensary.

Sec. 6. Dispensaries legally incorporated or in operation in this commonwealth at the date of the passage of this act shall, on application, be permitted to continue in operation for the remainder of the calendar year without fee. The said department is hereby directed to cause an inspection to be made of all such dispensaries prior to the thirty-first day of December in the current year.

Sec. 7. Any person, firm, association or corporation advertising, conducting, managing, or maintaining a dispensary as defined in this act, unless the same is duly licensed under this act, and any person, firm, association, or corporation wilfully violating any rule or regulation made and published under the authority of this act, shall be guilty of misdemeanor, and, on conviction thereof, shall be punished by a fine of not less than ten dollars nor more than one hundred dollars. A separate and distinct offense shall be deemed to have been committed on every day during which the violation is given in writing by the said department to the authorities of the dispensary concerned. It shall be the duty of the commissioner of health to report to the attorney-general any violation of this act.

Approved April 2, 1928."

HOW OTHER STATES HANDLE CLINICS

EXCERPTS FROM LETTERS RECEIVED FROM DIFFERENT STATE BOARDS OF HEALTH

1. Arizona: "Social service centers in larger towns supervise the clinics."

2. Arkansas: "State Health Department operates no clinics except on free basis for those unable to pay. Clinics established by private or official agents or hospitals not coöperating with State Board of Health have their own policies, according to the directors in charge."

3. Colorado: "There is no state law providing distinctly for clinics and outdoor treatment. However, there are several health and welfare units which conduct clinics at various times and places simply by regulation and agreement, but not distinctly by statutory provision."

4. Georgia: "Not licensed or supervised."

5. Idaho: "Supervision of hospitals and clinics is by county health board or the respective boards of county commissioners."

6. Illinois: "Local communities, under the police power of the state may establish and regulate clinics, dispensaries and out-patient departments by ordinance."

7. Indiana: "Clinics and dispensaries in cities are under supervision of city health departments and subject to such regulations as the health departments may adopt. Same is true of out-patient departments of city hospitals. Private hospitals conduct their out-patient departments under such rules and regulations as the hospital governing boards adopt."

8. Kansas: "So far as I know, the hospital itself regulates and provides for the medical attention given the clinic patients."

9. Michigan: "Supervised only by the management of the various hospitals to which they belong."

10. New Hampshire: "Hospitals have supervision over any work relating to hospitals; tuberculosis clinics under supervision of New Hampshire Tuberculosis Association. Venereal Disease clinics under supervision of the State Board of Health."

11. North Dakota: "Not supervised at this time."

12. Oregon: "Practically no supervision of these clinics. However, they are usually conducted by members Oregon State Medical Society. There are one or two outlaw clinics having no supervision whatever."

13. Pennsylvania: "Department of Welfare shall make necessary investigation to ascertain whether any dispensary, clinic, or hospital applying for a charter is needed in the community, opinion of the department shall be forwarded to Court of Common Pleas, but shall not be final in decision re granting of charter."

14. Rhode Island: "Controlled by the respective hospitals."

15. Texas: "(1) City clinics for treatment of indigent sick under city health departments. (2) Out-patient departments of hospitals are under jurisdiction of hospital which must be registered; only licensed physicians are supposed to conduct examinations and treatments. (3) Concerning private clinics operated by groups of physicians, the only requirement is that physicians be registered M. D.'s."

16. Virginia: "Most of the clinics are connected with either medical colleges, general hospitals, or the City Health Department."

17. West Virginia: "Very few out-patient departments of hospitals. Bureau of Venereal Disease (State Department of Health) has supervision of twelve venereal disease clinics; tuberculosis clinics are supervised by the State Tuberculosis Association; preschool clinics are supervised by the respective divisions of the State Department of Health."

18. Wisconsin: "Such regulations as are imposed are of local origin through city councils or county boards."

A survey of this character quickly brings out the fact that there is a very marked duplication of work of the various clinics in any large community. There have been a few surveys made attempting to compile the existing material for the health problems of a community. These surveys have all been under departments of social welfare or community chests. There is no data available that would specify or attempt to state when a saturation point in regard to clinics and hospitals has been reached. This saturation point is naturally a fluctuating one, dependent first upon the rate of growth of the community, and secondly, the fluctuations of the economic situation in that community.

SOME CLINIC EVILS

Evils That Regulate the Number of Clinics in a Community.—1. Religious organizations are vying with each other, and establishing competitive clinic groups in the same locality, which necessitates separate estab-

lishments, separate capital investments, separate staffs, separate nurses, separate social service departments.

2. Social groups, such as women's clubs, fraternal organizations, likewise establish health centers and clinics as a part of their social welfare program and in order to justify their existence.

3. Politics also is a factor in establishing unnecessary organizations and groups.

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Social Service Agencies.—Social service groups have developed because economic dependency goes hand in hand with physical and mental disease, ignorance, crime, juvenile delinquency, and a combination of these factors results in misery and premature death. The social service groups have been responsible for the development of the clinic situation as we have it today. However, one must state that those clinics that are under large social service groups, such as community chests, are the best clinics that we have in this state today. They have attempted in a meager way to set standards for these clinics, both economical and medical. They, however, are responsible for a great many unnecessary clinical groups. They are responsible for such health surveys as are available for any community at the present time. The medical profession has not seen fit to make such health surveys and surveys of medical facilities in this state. Social welfare is well organized. They have a well-organized department as a part of the state offices, the Department of Social Welfare, and in the large cities there is also established subsidiary offices of this department. They have established sets and standards of procedure in regard to various activities, and no social service groups can organize without the sanction of this department. There has, therefore, come to be recognized a profession known as a medical social worker. This profession has been developed with the development of clinics where it is necessary to have social investigations in regard to clientele patronizing such places. This is the crux of the situation. Who is eligible to attend these clinics? We often feel that many people attend clinics who should not do so. In order to ascertain those eligible for service at a clinic many factors must be taken into consideration, and only one who is trained in this investigation can possibly ascertain the facts of eligibility. A survey made at the Washington University Dispensary at St. Louis revealed that the number of people who take advantage of clinic work that are not entitled to it is small and but two per cent. This percentage varies with the efficiency of the investigation given each dependent patient. Various means suggested to eliminate this two per cent are impractical. Quoting from a statement prepared by Michael M. Davis for the Public Health Federation of Cincinnati, Ohio, concerning the patient's ability to pay:

"Medical service in hospitals and clinics needs to be regarded from four points of view:

(a) That of *the patient* who needs certain medical service.

(b) That of *the community*, which is interested to see that patients secure what they need even if they are unable to pay for it.

(c) That of *the physician*, who is the main professional agent in rendering medical service.

(d) That of *the hospital or clinic*, the institution which administers the service.

FEES PAID BY CLINIC PATIENTS

On what basis should the ability to pay for medical service be determined?

There are three primary elements to be considered:

1. *The income of the patient or family* considered on an annual basis.

2. *The size and constitution of the family*, affecting as these do, the necessary expenses.

3. *The cost of the medical service* required by the patient.

Emphasis needs to be laid on considering irregular or seasonal earnings in the estimation of annual rather than monthly or weekly income, of including supplementary as well as main sources of income; and of ascertaining debts and other financial obligations.

The paying ability of a family is substantially affected by its constitution. A family of adults, for example, differs decidedly in its needs from one with the same income composed of parents with several young children. Elderly parents or relatives who must be supported may have to be considered as part of the family group even though they reside elsewhere.

The diagnosis of a disease may cost, at private rates, from a few dollars to several hundred dollars. The cost of treatment varies even more widely. Obviously, the ability of a patient to pay depends not so much upon his financial resources as upon the relation between his resources and the cost of the services which are required. The duration of an illness must also be considered, both as affecting expense and also as causing loss of income if the patient is a wage-earner.

Patients ordinarily able to pay for private medical care may be temporarily in the clinic or ward group because of accident or misfortune. Patients may be able to pay for private care or full hospital rates for a minor or short illness, whereas for a major operation, or for an illness requiring specialized or expensive service they would fairly receive care at reduced or free rates in a hospital or clinic. On the other hand, the paying ability of a family may be increased by judicious budgeting or arrangements for time payments.

Great stress should be laid on the importance of a skilled person in immediate charge of the admission of patients. The qualities needed are tact, business sense, training and experience in interviewing and managing people, and knowledge of living conditions, and community resources.

There are certain medical situations, such as emergency cases, and cases of communicable disease, which override financial considerations, and require the admission of the patient for at least one treatment."

THE CLINIC PROBLEM IS AN URBAN PROBLEM

The Clinic Is a City Problem.—The clinic problem affects only large centers of population.

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Location of Clinics.—It has long been felt that a clinic should be placed in that part of the city or community where the laboring classes are housed or where the population is thickest with that class of people who might be eligible for clinic service. In order to investigate this phase of the problem a clinic was selected in the city of Los Angeles which was located in the railroad yards at the edge of a Mexican district in a portion of the city which was almost inaccessible by street car from other portions. A map was kept and pins were inserted for each new patient that applied at the clinic for a period of two years. The results were very surprising. It was found at the end of this period of time that the pins were evenly distributed throughout the entire city and surrounding suburban districts without any regard as to the locality of that clinic. Unfortunately it was realized

at the time the survey was completed that 50 per cent of the patients attending this clinic were referred through a religious welfare organization. However, the conclusion that the essential feature in location of a clinic is that it be located in the community at a point that is easily accessible to street car service, is justified.

Cost of Clinics.—The personnel involved in rendering service to any one patient applying at a clinic is as follows:

1. Director or manager of clinic.
2. Social service worker.
3. File clerk.
4. Nurse.
5. History clerk (usually volunteer).
6. Doctors (volunteer, usually more than one).
7. Laboratory technician.
8. Janitor.
9. Field social worker.
10. Various workers connected with central office of social service branches.

The cost of caring for patients in any clinic is dependent on the total number of indigents visiting that clinic. There must be a sufficient number to justify the number of the personnel necessary to run the clinic. A small clinic, then, becomes a rather formidable economic problem.

OPERATION COSTS

Cost of Operation.—The average total cost per charitable clinic in the State of California is \$12,398.50. This includes 175 charitable clinics, and does not include the emergency hospital services of either Los Angeles or San Francisco. The average total income received from patients per clinic is \$1680.25. Now, inasmuch as there are 6870 average visits per year for each clinic, then the average amount collected per visit would be \$0.259. Inasmuch as \$1680.25 is the average amount that each clinic collects from patients, and 54 per cent of these people are free

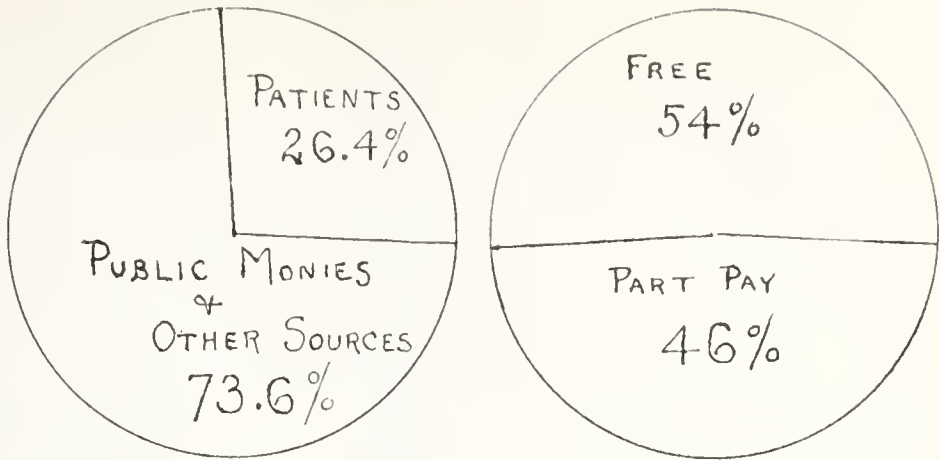


Fig. 1
Percentage of moneys collected from patients attending charitable clinics in the State of California in relation to the total income of clinics. Percentage of free and part-pay patients attending charitable clinics in the State of California.

patients, then the average amount collected from those individuals who pay is \$0.479. This, however, is not the total cost per visit, which is \$1.78. The clinic patient, therefore, pays 26.4 per cent of the total cost of his care. This average was ascertained from a computation of the total costs of all the charitable clinics in the State of California, and the number of visits made to these clinics.

The source of moneys for the operations of clinics and dispensaries, in addition to that paid by the patient, which amounts to 73.6 per cent, is derived from the following sources:

- (a) Taxation and public moneys.
- (b) Voluntary contributions and donations.
- (c) Drives and subscriptions.
- (d) Endowments.
- (e) Private resources.

The greater portion of this money is derived from taxation and public moneys, subscriptions, and drives. The exact percentages are not available.

How, then, is this money spent?

Eighty-three cents of every dollar spent in the administration of charitable clinics goes toward salaries of the personnel necessary to conduct the clinic. Seventeen cents of the dollar is spent in rent, taxes, interest, and incidentals. Medicines are sold at cost, laboratory work is done at cost, and the services of the physicians are gratis, with the exception of those clinics run in connection with medical schools and government institutions, where the doctors receive a salary for services rendered. One can easily see, then, from the above that, in order to pay doctors for services in charitable clinics, there must be a complete reconstruction of the economic administration of these clinics, or else there must be collected from the patients attending these clinics an additional sum of money necessary to pay the physicians adequately. Under the present methods of clinic administration this appears to be practically impossible, unless some solution or plan can be arrived at in order to cut down the tremendous overhead occasioned by a large administrative personnel.

In order to show more clearly the above point, comparison is here made between San Francisco County and Los Angeles County.

County	Number of Clinics	Number of Visits	Cost
San Francisco	14	452,229	\$ 504,345.78
Los Angeles	134	489,286	1,250,305.09

Although there are approximately the same number of visits made to clinics in San Francisco County as in Los Angeles County, there is a great difference in

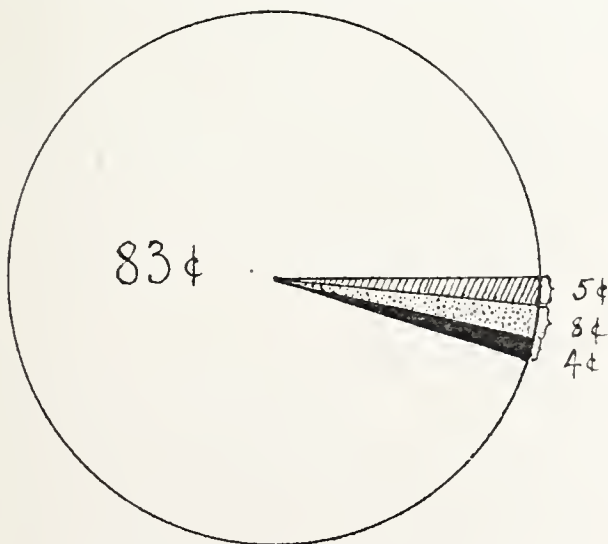


Fig. 2.—How the average clinic dollar is spent

- Salaries
- Incidentals
- Rent and taxes
- Interest

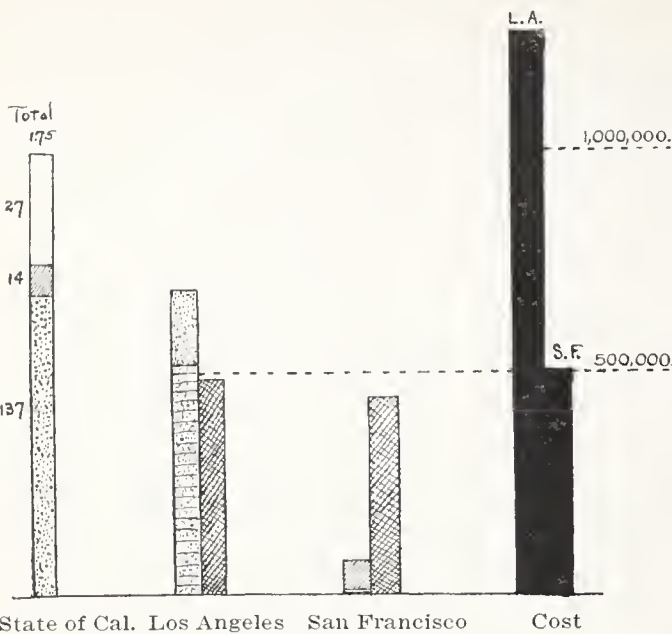
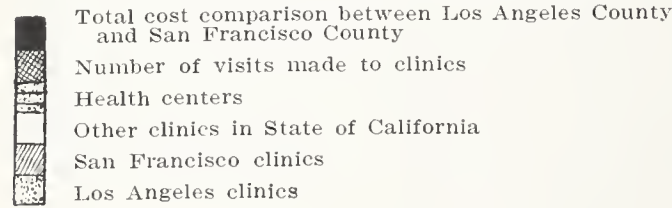


Fig. 3.—Diagram showing some relative comparisons for state as a whole, Los Angeles and San Francisco



cost. (The above figures do not include the San Francisco or Los Angeles emergency hospital service.) The average cost per visit for Los Angeles County charitable clinics is \$2.55. The average cost per visit for San Francisco County charitable clinics is \$1.11. The reason for this discrepancy is the fact that there are too many clinics in Los Angeles County. Centralization of clinical work into large clinics would very materially cut down such a stupendous overhead. In Los Angeles County 106 of the 134 clinics are under the jurisdiction of the various health departments. In San Francisco County two of the fourteen clinics listed are under the jurisdiction of the health department.

MEDICAL PROFESSION MUST LEAD IN REGULATION OF CLINICS

Standard of Medical Practice.—Much criticism is dealt the clinics in large localities by the medical profession, and practically all criticism is to the point that clinics usurp the patients of private doctors. Such criticism at the hands of the doctors does not help to curb the number of clinics in a locality, nor does it help to decrease the cost of medical care as it concerns the community at large. All of the charitable clinics that have reported in the state of California have well-organized social service departments for investigating the eligibility of patients attending clinics.

The standard of medical practice as carried on in a great many clinics is not a credit to the medical profession. Because of lack of time and inadequate number of doctors attending the clinics, examinations are hurried, incomplete, and inadequate records are kept. Because the service of the physician is volunteer, only those members of the profession are available who are able to give time from their practices. Many of the more desirable doctors of the community are therefore not available. If the clinics were required to give the highest type of recognized medical service to the patients attending them, then many of

the poorly conducted smaller institutions would be forced to close their doors.

The plea, then, would be to raise the standard of medicine in all of the charitable clinics of the State of California. The medical profession from time immemorial have been the leaders in matters of public health and public medicine. The clinic situation has grown so fast in late years that it is almost out of control, and unless the medical profession regulates the standard of medical practice for these institutions, then the social service departments will regulate it for them.

TYPES OF CLINICS IN THE STATE OF CALIFORNIA

- (1) Charitable clinics, 80 per cent.
 - (2) Private clinics, 9 per cent.
 - (3) Commercial clinics, 11 per cent.
- Note: This survey does not include those clinics and out-patient departments coming under the jurisdiction of the Compensation Insurance Act.

SOME CALIFORNIA CLINIC STATISTICS

- A. (1) Charitable clinics in the State of California, 175.
- (2) Total visits made to these departments for one year (175 clinics), 1,195,390.
- (3) Total number of free patients seen, 646,110.
- (4) Total number of new patients seen for these clinics, 235,470.
- (5) Total amount of money collected from patients, \$290,679.25.
- (6) Total cost of operation of these clinics, \$2,132,555.01. Average cost per visit is \$1.78.
- B. Charitable clinics are located in the following cities:
Alameda, Belmont, Berkeley, El Monte, French Camp, Loma Linda, Long Beach, Los Angeles, Martinez, Monrovia, San Diego, Oakland, Orange, Pasadena, Riverside, San Francisco, San Bernardino, Sacramento, Stockton, and Visalia.
- C. Health departments maintain clinics in the following counties:
Los Angeles, San Francisco, San Joaquin, Santa Barbara, Tulare, Ventura, Alameda, Contra Costa, Madera, Orange, Riverside, Sacramento, San Bernardino, and San Diego.
- D. Counties where hospitals maintain no out-patient departments separately.
Alpine, Amador, Butte, Calaveras, Colusa, Del Norte, Eldorado, Fresno, Glenn, Humboldt, Imperial, Inyo, Kern, Kings, Lake, Lassen, Marin, Mariposa, Mendocino, Merced, Modoc, Mono, Monterey, Napa, Nevada, Placer, Plumas, San Benito, San Luis Obispo, Santa Clara, Santa Cruz, Shasta, Sierra, Siskiyou, Solano, Sonoma, Stanislaus, Sutter, Tehama, Trinity, Tuolumne, Yolo, and Yuba.
- E. Private clinics in the State of California are as follows:

(Costs on these clinics are not available because many of the managers or owners could or would not give them to us.)

Alameda County:	
Hayward Clinic.....	Hayward
Fresno County:	
Fresno Clinic	Fresno
Monterey County:	
Grace Deere Metabolic (in construction).....	Monterey
Orange County:	
Johnson-Wicket Clinic.....	Anaheim
San Clemente Hospital and Clinic.....	San Clemente

Riverside County:	
Riverside Clinic.....	Riverside
San Bernardino County:	
Savage Clinic.....	San Bernardino
Santa Barbara County:	
Santa Barbara Clinic.....	Santa Barbara
Clinic of Medical Arts.....	Santa Barbara
Sonoma County:	
Santa Rosa Clinic.....	Santa Rosa
Yolo County:	
Woodland Clinic.....	Woodland
San Diego County:	
Les Invalides.....	San Diego
Surgical Clinic.....	San Diego
Rees-Stealy Clinic.....	San Diego
Children's Clinic.....	San Diego
San Diego Clinic.....	San Diego
California Clinic.....	San Diego
Scripps Metabolic Clinic.....	La Jolla
San Francisco County:	
Free Service Clinic.....	San Francisco
Greens' Eye Hospital.....	San Francisco
Mount Moriah Hospital.....	San Francisco
Western Medical Service Corporation.....	San Francisco
Kearny & Geary Clinic.....	San Francisco
F. Justin McCarthy and Staff.....	San Francisco
La Societe Francaise de Beinfaisance	
Mutuelle.....	San Francisco
German General Benevolent Society.....	San Francisco
Los Angeles County:	
California Clinic.....	Los Angeles
Los Angeles Medical Group and Clinic.....	Los Angeles
Roos Loos Clinic.....	Los Angeles
Soiland Clinic.....	Los Angeles
Children's Clinic of Los Angeles.....	Los Angeles
Los Angeles Clinical Group.....	Los Angeles
Monrovia Clinic.....	Monrovia
Los Angeles Clinic and Hospital Assn.....	Los Angeles
Hollywood Clinic.....	Hollywood
Seaview Clinic.....	Long Beach
Radium and Oncologic Institute.....	Los Angeles
Marian Davies Foundation.....	West Los Angeles
Baptist Christian Center.....	Los Angeles
Vienna Health Institute.....	Los Angeles
Viscose Ambulatorium.....	Los Angeles
Belvedere Clinic.....	Los Angeles
Children's Clinic.....	Los Angeles
Emergency Clinic.....	Los Angeles
Los Angeles Cancer Hospital and Clinic.....	Los Angeles
Los Angeles Express Better Baby Clinic.....	Los Angeles
Long Beach Telephone Clinic.....	Long Beach
Edwin Larson Hospital and Clinic.....	Los Angeles
Los Angeles Diagnostic Clinic.....	Los Angeles
Los Angeles Tonsil and Adenoid Clinic.....	Los Angeles
Mothers' Clinic.....	Los Angeles
Moore-White Clinic.....	Los Angeles
Medical Clinic.....	Los Angeles
MacLean Clinic.....	Los Angeles
Manchester Hospital and Clinic.....	Los Angeles
Neighborhood Settlement Clinic.....	Los Angeles
Pacific Coast Proctological Clinic.....	Los Angeles
Pershing Square Clinical Group.....	Los Angeles
Dr. A. E. Pike Clinic.....	Long Beach
Solar Clinic and Sanatorium.....	Los Angeles
Vermont Clinic.....	Los Angeles
Vermont Tonsil Clinic.....	Los Angeles
Vermont Medical Clinic.....	Los Angeles
Women's Clinic and Maternity Service.....	Los Angeles
Watts Suburban Clinic.....	Los Angeles

PRIVATE HOSPITALS WITH OUT-PATIENT DEPARTMENTS

(This is only a partial list as gathered from questionnaires which were sent out. Complete lists will be printed in later reports.)

Los Angeles County:	
Alhambra Hospital, Inc.....	Alhambra
Good Hope Hospital Association.....	Los Angeles
Methodist Hospital.....	Los Angeles
San Pedro General Hospital Association.....	San Pedro
Eye and Ear Hospital Clinic.....	Los Angeles
Long Beach Community and Seaside	
Hospital.....	Long Beach
Tichenor Orthopaedic Clinic.....	Long Beach
White Memorial Hospital.....	Los Angeles
Barlow Sanatorium Association.....	Los Angeles
Calaveras County:	
Bret Harte Sanatorium.....	Murphy
Lassen County:	
Westwood Hospital.....	Westwood
Riverside Hospital.....	Susanville
Mariposa County:	
Yosemite National Park (Government).....	Yosemite

San Bernardino County:	
Loma Linda Sanatorium and Hospital.....	Loma Linda
San Diego County:	
Paradise Valley Sanatorium and Medical	
Clinic.....	San Diego
San Diego Hospital.....	San Diego
San Francisco County:	
St. Luke's Hospital.....	San Francisco
Shriners' Crippled Children's Hospital.....	San Francisco
Santa Barbara County:	
St. Francis Hospital.....	Santa Barbara
Cottage Hospital.....	Santa Barbara
Santa Clara County:	
Sunnyholme Preventorium.....	San Jose
Alameda County:	
Fabiola Hospital.....	Piedmont

CONCLUSIONS

- I. Legislation is needed:
 - (a) To define clinic or dispensary.
 - (b) To create a bureau or sub-bureau for the purpose of:
 - (1) Standardizing the type of medical practice in these dispensaries or clinics.
 - (2) To license clinics.
 - (3) To meet the needs of various communities in regard to dispensaries and clinics.
- II. Standardization of medical practice in clinics and dispensaries is important, and is the biggest factor in curbing the number of irregular and small clinics.
- III. Centralization of clinics is a big factor in the economics of clinical practice, as evidenced by the total cost of San Francisco as compared with Los Angeles, where approximately the same number of visits were made.
 - (a) Centralization of health units, such as city, county, and school departments, in large centers of population would cut down materially the total cost.
- IV. The administration of clinics should be in the hands of the medical profession, and various other departments should be subsidiary ones.
 - (a) Medical social service.
 - (b) Medical nursing service.
- V. The operation of clinics and dispensaries with free medical care by religious organizations, insurance companies, clubs, fraternal organizations, newspapers, etc., for the sole purpose of furthering their own respective ends, is to be deplored. It is still further to be deplored if volunteer medical service is requested for such institutions.
- VI. A survey of the medical facilities of the state should be undertaken by the California State Medical Association with a full-time man and clerical help, in order to get statistics on the vast number of private and irregular clinics and groups, who are preying on the public under the name of clinic, which is a word that has been coined and developed by the medical profession and has become generally recognized as a place where one can get the best of medical care at a nominal cost. It is up to the medical profession to protect its good name and curb the activities of such irregular groups by curbing their use of the word "clinic."
- VII. The cost of caring for patients in any clinic depends on the total number of individuals visiting that clinic. There must be a sufficient number to justify the number of the personnel necessary to conduct such a clinic. The small clinic has no business to exist.

STATE MEDICAL ASSOCIATIONS

CALIFORNIA MEDICAL ASSOCIATION*

LYELL C. KINNEY President
JUNIOUS B. HARRIS President-Elect
EMMA W. POPE Secretary

COMPONENT COUNTY SOCIETIES

ALAMEDA COUNTY

The Alameda County Medical Association held a joint meeting with the county dental unit at Hunter Hall on May 19 at 8:20 p. m. at which the following scientific program was presented.

A report of a case of varicose veins with large ulcer treated successfully by the injection method by J. H. Scudder. Doctor Beaudoux reported a case of septum deviation with infection of the sphenoid sinuses in a boy twelve years of age, demonstrating the case and showing x-ray plates. He also presented a foreign body removed from the roof of the nasal cavity of a man who had been injured forty years previously, and who had carried the foreign body in the nose for that period. Dr. Don J. Aubertine talked on the essentials of oral diagnosis from a medical and dental standpoint, illustrating his talk with charts, lantern slides, and x-ray films. Dr. Clifford Sweet discussed dental prophylaxis in children and Dr. W. F. Holcomb talked on the history of dentistry and medicine.

The meeting was continued informally at the refreshment table, where members of the two professions had an opportunity to become better acquainted and to exchange views on subjects of common interest.

GERTRUDE MOORE, *Secretary*.



COLUSA-GLENN-YOLO COUNTY

The medical men of Yolo, Colusa, and Glenn counties met at a dinner at Willows Wednesday evening. After dinner a very fine meeting was held at which were discussed pneumonia and the treatment of varicose veins by the injection method. Twenty-six men were present. This was the first meeting of the tri-county society and much good-will and medical information was resultant. The different types of chest conditions were demonstrated with films and the injection of veins was demonstrated on patients present.

T. H. BROWN, *Secretary*.



FRESNO COUNTY

The regular meeting of the Fresno County Medical Society was held in the Hotel Californian June 3.

Doctor Trowbridge reported that the committee of which he is the chairman, appointed to investigate the County Hospital situation in Fresno, was carrying on the investigation and would have a full report to offer at a later meeting.

Dr. C. O. Mitchell, delegate to the meeting of the California Medical Association, reported the meeting of the session of the House of Delegates held April 30 at Del Monte. His report was comprehensive and interesting.

* For a complete list of general officers, of standing committees, of section officers, and of executive officers of the component county societies, see index reference on the front cover, under Miscellany.

Dr. John H. Graves of San Francisco was the speaker of the evening. He discussed the problems which medical men are facing with regard to the patient with moderate means. He gave a review of social medicine as it is practiced in Germany, Great Britain and other European countries. He discussed the various plans that have been considered recently in this country for coping with the problem of a patient with an income less than \$2500. He advised that nothing should be done in regard to this matter by the various societies of the California Medical Association until the final report is made by the national committee. This committee is working on a five-year program, two of which have elapsed, so that the report will not be published for at least three years. Following Doctor Graves' paper there was a general discussion in which Doctors A. E. Anderson, C. O. Mitchell, C. P. Kjaerbye, and J. A. Montgomery took part.

J. M. FRAWLEY, *Secretary*.



ORANGE COUNTY

The regular monthly meeting of the Orange County Medical Society was held in the meeting rooms of the First Methodist Church of Fullerton on Tuesday, June 3, at 6:45 p. m. A very fine dinner was served by the ladies of the church to approximately fifty doctors.

After the dinner the meeting was called to order by President Robertson. The minutes of the last meeting were read and approved. The speakers of the evening were Dr. E. C. Fishbaugh of Los Angeles and Dr. Bessie Stokes Martell of Santa Ana. Doctor Fishbaugh gave a very interesting paper on "The Treatment of Arthritis," stressing the importance of the colon as the etiological factor in a great number of these cases. This was illustrated by lantern slides, showing how improvement takes place very often after conditions of the large bowel are remedied by proper diet, elimination, surgery, and even colonic irrigation. Doctor Martell gave a very practical and interesting paper on "The Relation of Blood Chemistry to Disease." It contained many excellent points, especially for the general practitioner in diagnosis.

The secretary was ordered to investigate the cost of county auto emblems and then circularize the members of the society in an effort to find out what number desired them.

Resolutions on the deaths of Dr. George Austin Shank and George Clyde Ruble were prepared and read by Dr. C. D. Ball, state chairman of the Committee on History and Obituaries. These resolutions were accepted and the secretary was ordered to send a copy of each to the widows and also to the state secretary.

A motion of thanks and appreciation to the ladies of the church for their part in providing the dinner and place of meeting was made and seconded. This was carried unanimously.

HARRY G. HUFFMAN, *Secretary*.



SACRAMENTO COUNTY

The third regular meeting of the Sacramento Society for Medical Improvement for the year 1930 was called to order by the president, Gustave Wilson, at the Senator Hotel, April 15, at 8:30 p. m., forty-four members being present.

The minutes of the last meeting were read and approved.

The paper of the evening was given by Dr. Charles E. von Geldern. His subject was "Congenital Malformations and their Etiology." Many varieties of congenital malformations were discussed and interesting drawings of these monstrosities were projected on the screen. Experimental evidence was cited which seemed overwhelmingly to favor the assumption that congenital malformations were the result of an arrest some time during embryonic development; also that the double and single types and other differences which occurred depended entirely on the particular time of the arrest in development.

The paper was discussed and appreciation of it expressed by Doctors Rulison, Johnson, Gundrum, Wilder, and Beach.

The applications for membership of Doctors D. W. Babcock, G. W. Babcock, A. W. McPherson, and E. Sevier were read for the second time and all were unanimously elected to membership in the Sacramento Society for Medical Improvement. The applications for membership of Doctors Beauchamp, W. B. Feiger, P. W. Frame, M. Hopkins, B. J. Rea, and J. A. Stabel were read for the first time.

Motion was made and passed that the secretary be instructed to write a letter of congratulation to the secretary of the Dental Association of Sacramento in which offer is made of our help in the forthcoming convention.

Dr. F. F. Gundrum as chairman of the Membership Committee reported the activities of the committee in securing members.

FRANK WARNE LEE, *Secretary*.

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SAN DIEGO COUNTY

On May 13 in the Red Cross building at the Naval Hospital, Dr. Leo Buerger of Los Angeles, who is well known for his research work on the pathology of the vascular system, spoke before the joint meeting of the Naval Hospital staff and the San Diego County Medical Society.

His talk, which was profusely illustrated, dealt with those somewhat puzzling vascular conditions of the extremities tending toward obliteration of the vessels. Doctor Buerger dwelt chiefly upon the clinical symptomatology and pathology of his subject, emphasizing especially the condition he calls thrombo-angiitis obliterans.

The lecture was thoroughly enjoyed by a large audience. The meeting adjourned to partake of a tempting buffet lunch served by the hospital staff.

* * *

At the regular meeting of the staff of the La Jolla Hospital Monday, May 18, Dr. H. A. Thompson talked on "The Use and Abuse of the Clinical Laboratory," stressing first the use that should be made of the various fields of laboratory facilities, blood, urine, stools, metabolic, and serological work as adjuncts to the clinical findings. He called attention to cases where the laboratory findings are the means of differential diagnosis. Then Doctor Thompson asked that the laboratory be not abused: "Use it as corroboration; don't ask for a diagnosis from the laboratory; don't ask for emergency work when the case is not an emergency."

After questions and discussions by various members of the staff, Doctor Thompson closed the evening.

* * *

The regular monthly meeting of the Mercy Hospital staff was held on May 20 at 8 p. m. In accordance with the rules and regulations set by the American College of Surgeons, a part of each staff meeting henceforth will be devoted to a review and discussion of deaths occurring in the hospital.

Several interesting cases were discussed by Doctors Wing, Burger, McClendon, Schlappi, and Ryan.

At this meeting a new financial policy was adopted, which includes the establishment of credit for the patient before admission to the hospital. In this way it is hoped that the financial burden of the hospital will be relieved.

MINTON FETTER.

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SAN JOAQUIN COUNTY

The regular meeting of the San Joaquin County Medical Society was held Thursday at 6 p. m., June 5, at the country home of Dr. B. F. Walker, eight miles north of Stockton. The program was preceded by a swim in the private pool and a fine barbacue dinner under the pergola, with music by the Optimist Club Quartet.

The principal paper of the evening was given by Dr. A. C. Reed, professor of tropical medicine at the University of California, on the subject, "A Travelogue Through Asia," illustrated with lantern views.

Doctor Reed stated that he would develop the fact that health and sanitation are governed in the East as they are in the West by superstitions, beliefs and traditions of race and religion. In addition, the ever increasing nationalism in Asia is adding to the problem.

He showed pictures of Cairo to illustrate the method of spreading of such diseases as hookworm and Bilharzia disease, due to the use of water in canals for irrigation, sewers, bathing, washing animals, drinking, and every other purpose. The trematode worms ruined ancient Egypt and have served to keep modern Egypt in subjection. At present the government is combating the diseases with mobile dispensaries, which treat from four to six hundred cases a day, manned by one doctor and a group of native assistants. The treatment consists of intravenous injections of six per cent tartar emetic daily for twelve doses. These men become very skillful and swift in their work. The method of treatment of splenomegaly by removal of the spleen is very successful in Egypt. By taking the precaution to cure the Bilharzia disease first and by being sure that the hemoglobin is forty per cent or better, they have had a fatality of less than four per cent following the operation.

Corn is an abundant crop in Egypt and pellagra a very common disease. One peculiarity due to seasonal condition is that while pellagra is a spring disease here, in Egypt it is most frequent in the fall.

In Palestine, malaria used to be the most prevalent disease, but since the occupation by the British, who brought sanitation and screening of the cisterns in the cities, malaria has almost disappeared.

Doctor Reed spoke of the unsanitary methods of date packing where the fruit is gathered and packed by treading with the feet into boxes and bales, along with dust and dirt of every description.

He brought out vividly by lecture and pictures the most unsanitary conditions in India, where religious pilgrims gather in temple pools and in the Ganges River to bathe, drink the water and put it into their eyes, ears, nose, and mouth. The river and the pools are polluted by promiscuous bathing, by the sewage of the cities and the temples, by the wholly or partially burned corpses of human beings and lower animals and by every form of offal.

The effect of betel-nut chewing, alone or combined with the use of Indian hemp during the great feasts, was demonstrated.

In conclusion, the doctor said the great problem to be met was religious traditions and growing nationalism. He felt we must meet China, accept the best of their culture and induce them to accept the best from our civilization. All of the larger firms of San Francisco have come to recognize that the future of our Oriental business depends upon our personal relations and friendship with China. That will be developed by friendly exchange of scientific information. The international institute is now an integral unit of the University of California to coöperate with the nations of the East.

The application of Dr. E. W. Hill of San Andreas for membership by transfer from the San Benito County Medical Society was read and approved.

The meeting was attended by Doctors A. C. Reed of San Francisco, Fred R. De Lappe of Modesto, Orrin Cook, Edward Beach and Frank Reardon of Sacramento, and Barton Powell Jr., as guests. The members of the society present were: Doctors E. A. Arthur, Barnes, Blackmun, Boehmer, Bolinger, Broadus, Dameron, Doughty, Dozier, Haight, Hansen, Holliger, Kaplan, McCoskey, McGurk, McNeil, Nelson, O'Donnell, Pinney, D. R. Powell, Sanderson, Sheldon, M. H. Smyth, Hudson Smythe, Thompson, Tretheway, Van Meter, Vischi, Walker, Williamson, and Sutton.

C. A. BROADDUS, *Secretary*.

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SAN MATEO COUNTY

The April meeting of the San Mateo County Medical Society was held April 25 at the Oak Tree Inn, San Mateo, following dinner. About twenty members were present; Doctor Phillips of Santa Cruz, counselor for this district; and the guest speakers, Doctors Gelston and Darling of San Francisco.

Doctor Gelston gave a very interesting talk on the plan adopted by most pediatricians of taking care of infants on a yearly contract basis. He pointed out that in this way more frequent observations can be made and more accurate data can be kept concerning the child's development.

The San Francisco County Milk Commission and the status of various grades of milk were discussed by Doctor Darling. He discussed, also, the diseases spread by milk and the care necessary in preventing epidemics.

Doctor Phillips gave a short talk on the business of the convention at Del Monte in May.

Following a short business session the meeting adjourned.

ERMA B. MACOMBER, *Social Secretary*.

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SANTA BARBARA COUNTY

The regular meeting of the Santa Barbara County Medical Society was held in the St. Francis Hospital Monday evening, June 9, with Doctor Freidell presiding.

Owing to the limited time of the principal speaker, the business session was postponed until after the scientific program.

The president then called upon Coleman Stewart, who gave a short talk on "Ambulance Chasers." This was discussed by Doctors Bakewell, Stevens, Brown, and Atsatt.

Doctor Freidell then introduced Dr. John Graves, chairman of the State Committee on the High Cost of Medical Care, who gave a most interesting and instructive talk on "Medical Economics." He told how conditions were taken care of in Germany, Denmark, and Great Britain, and his conclusion was that none of these methods was applicable to the American people. He then outlined several methods that have been suggested to his committee and left a suggestion that our society have several meetings devoted to this subject and that each member seriously consider some plan whereby an equitable arrangement may be made for all. He particularly stressed that these suggestions should come from the medical profession themselves and not from the laity.

The paper was first discussed by Doctor Brown, who gave a glowing tribute to Doctor Graves for his thoughtful study and great amount of work as a member of his committee. Doctor Brown then read a few excerpts from his own paper which had been presented at the state society.

Doctor Graves' paper was further discussed by Doctors Stevens and Ullmann.

Dr. Ikeda of Tokio, Japan, then gave a short talk on the same conditions in Japan.

Following this talk the society went into executive session and Doctors D. H. McNamara, Doris McNamara, and Arthur E. Serns were unanimously elected into membership.

Doctor Bakewell, reporting for the committee on the Bissell Library equipment, stated that it was their conclusion that this library should be furnished by the staff of the Cottage Hospital rather than by the County Medical Society, the reason being that eventually the county society might have a home of its own and the question might arise as to whom this library belonged. It was moved, seconded and carried, that this suggestion be adopted.

A communication was read from the federal legislation for birth control, and it was moved by Doctor Ullmann, seconded and carried, that the communication be tabled.

A communication was then read from the Greater New York Committee on Health Examination. Doctor Bakewell moved, and it was seconded and carried, that hereafter all questions relating to any propaganda be referred to the board of censors.

Doctor Lamb then brought up the ambulance question, stating that it was impossible to get the city ambulance to take other than emergency accident cases to the County Hospital. The subject was discussed and it was moved, seconded and carried, that the president appoint a committee to wait upon the Police Commission and City Council to see if an equitable arrangement could be made.

The president then appointed the following committee: Doctors Lamb (chairman), Schurmeir, and Ullmann.

There being no further business the meeting adjourned.

WILLIAM H. EATON, *Secretary*.

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VENTURA COUNTY

The June meeting of the Ventura County Medical Society was held on Tuesday, June 10, at 8 p. m. in the clinic building of the Ventura County Hospital.

Members present were: Doctors W. S. Clark, D. G. Clark, Welch, Achenbach, Little, Armitstead, Broughton, Bianchi, Homer, Shore, and Smolt. Guests were: Doctors Mosher and Rhymes.

It was moved and carried that the summer recess be omitted this year and meetings held during July, August, and September.

The rest of the meeting was devoted to the paper of Dr. Conrad J. Baumgartner of Los Angeles. Doctor Baumgartner's subject was "The Diagnosis and Treatment of Goiter." The paper was illustrated by lantern slides of microscopic pathology and by a reel of motion pictures explaining the anatomy of the normal and diseased thyroid gland.

CHARLES A. SMOLT, *Secretary*.

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YUBA-SUTTER COUNTY

The annual meeting of the Yuba-Sutter County Medical Society was held in the Marysville Hotel. The following officers were elected to serve for one year: President, G. S. Delamere of Marysville; vice-president, Allen Gray of Marysville; secretary-treasurer, F. W. Didier of Wheatland. The board of censors: A. L. Miller, P. B. Hoffman, and N. R. Richardson. A vote of thanks and appreciation was tendered the outgoing officers, namely, E. E. Gray, president, and G. W. Stratton, vice-president.

Following the business meeting a lecture by Dr. Crawford Best of San Francisco was given on "Infant Feeding" which threw much scientific light on this very essential subject.

The meeting adjourned with luncheon.

F. W. DIDIER, *Secretary*.

OBITUARY

Robert Pollock, M. D.
1866-1930

Dr. Robert Pollock of San Diego died suddenly June 2. While not unexpected by those who were closest to him, his going is a shock. Coming to San Diego from Cleveland, Ohio, nineteen years ago to rest, he soon began to chafe under the enforced idleness, joined the medical society February 6, 1913, and started in again to labor in his chosen field, that of internal medicine. He battled his way back to comparative health, which lasted until recently. Few of the newer members of the medical society knew the part he played in bringing medicine to its present position in San Diego, if not in California. As delegate to the state and national organizations he added his counsel and experience to their deliberations. For years he served on the governing board of the Southern California Medical Association. But the pride of his heart was the medical library. He was one of the faithful few who started that organization years ago and "followed through" until it has reached its present standing as one of the best. In fact, it was his unwavering determination in the face of lack of interest and of lethargy that brought the library into being. It was only through his untiring and continued expenditure of self and material aid that kept it going during the early days of growth under the most untoward circumstances. Only those who labored with him know his vital contribution to the cause. The library is his monument.

But not only was Doctor Pollock an ardent worker for organized medicine; he was a close friend in times of struggle to many an individual practitioner. No one ever heard him utter an unkind comment regarding another physician. His going is a loss to all, both the group and the individual. His nineteen years of labor have made a place that cannot be filled. As time goes on the gap will close, but we will wait long for another who will give of himself so whole-heartedly to the cause of medicine.

CHANGES IN MEMBERSHIP

New Members

Alameda County—Geoffrey H. Baxter, Garry Richman Burke, George Fairchild Calvin, Claude G. Furbush, Gerald Harry Gray, Lawrence R. Jacobus, Nelson Sherman Keeler, Jefferson Larkey, William Atkinson Sadlier Magrath, George Elwood Nesche, William Walter Reich, Ralph Waldo Sanders, Alfred Adolph Siebert, Ralph S. Walker, Frances E. Wilson.

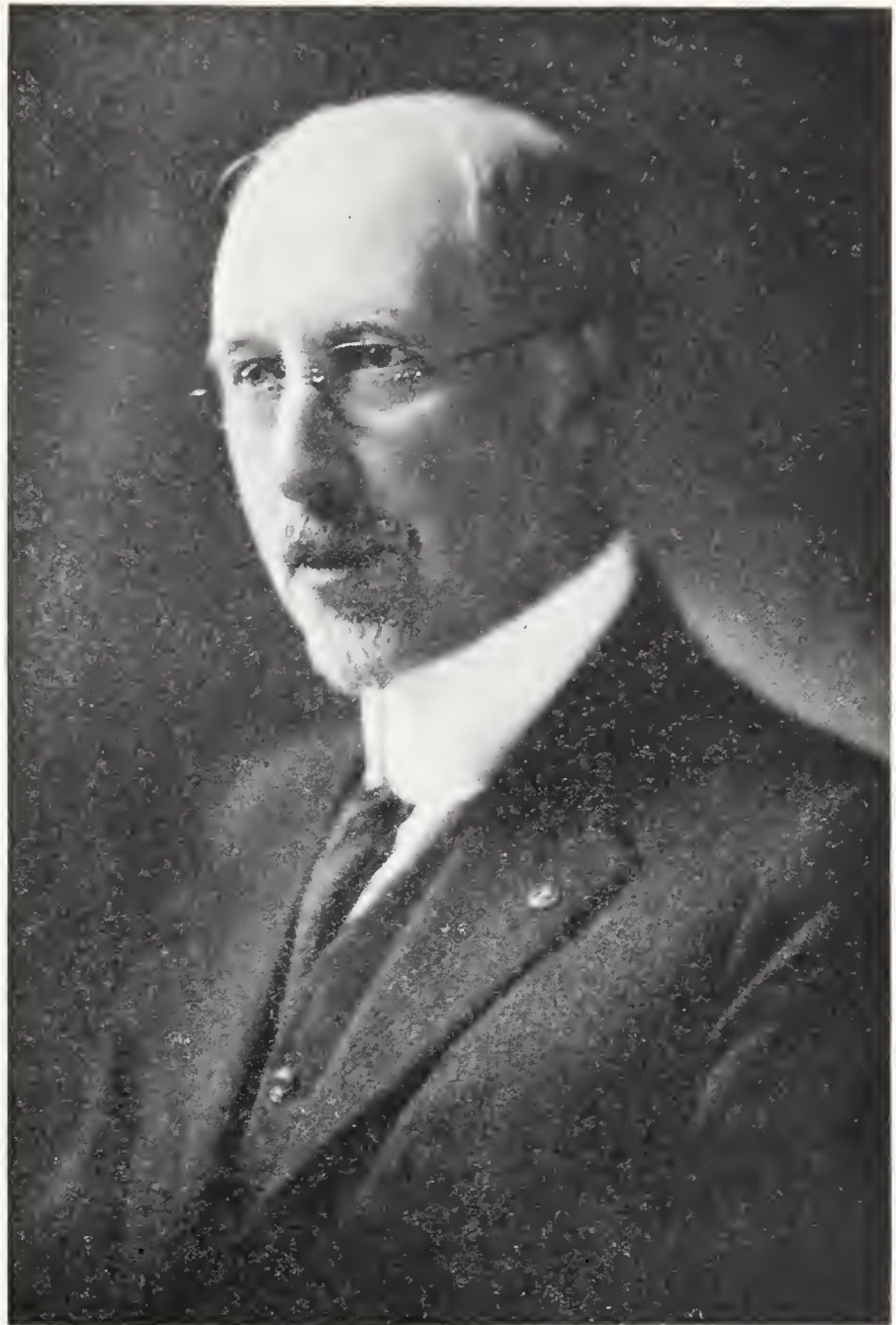
Butte County—Raymond Kilduff.

Imperial County—Frederick C. Gregg.

Kern County—Frederick John Miller.

Los Angeles County—H. Cedric Alward, Alexander Clement Cameron, Franklin Morton Dryden, Maxwell Fields, Philip I. Hoke, Warren Ellis Hunter, Erle Edward Langdon, Curt E. Leuschner, A. Lovas, Benjamin Naidis, Nina R. Smith, Mark T. Steele, Edwin B. Tuteur.

Orange County—Ralph C. Warne.



Robert Pollock

Riverside County—George Cable Holleran.

Sacramento County—Daniel W. Babcock, Jean Wells Babcock, Harry H. Beauchamp, Alfred W. MacPherson, Bernard J. Rea, Johann Alois Stabel.

San Bernardino County—Louisa H. Bacon, James Jay Cecil, Delbert B. Williams.

San Francisco County—Herman Feinberg, Joseph L. McCool, Dorothy Lucile Morse, Gerald B. O'Connor.

San Joaquin County—Thomas L. Sutton.

Santa Barbara County—Leonard J. Brunie, Yolande Sutherland Brunie, Delbert N. McNamara, Doris Lena E. McNamara, Arthur Eugene Serns, Charles S. Warwick.

Yuba-Sutter County—N. E. Richardson.

Resignations

Charles C. Fulmer, from San Francisco County.

James M. Smithwick, from Alameda County.

Wesley J. Woolston, from Los Angeles County.

Transferred Members

Earl W. Hill, from San Benito to San Joaquin County.

Deaths

Dunham, Ora Baxter. Died April 21, 1930, age 51 years. Graduate of University of Illinois College of Medicine, Chicago, 1900. Licensed in California, 1904. Doctor Dunham was a member of the Imperial County Medical Society, the California Medical Association, and a Fellow of the American Medical Association.

Gardner, Samuel J. Died at San Francisco, June 7, 1930, age 58 years. Graduate of the University of California Medical School, San Francisco, 1899. Licensed in California, 1899. Doctor Gardner was a member of the San Francisco County Medical Society, the California Medical Association, and a Fellow of the American Medical Association.

Hickox, Arthur Swain. Died at Oakland, June 3, 1930, age 69 years. Graduate of California Eclectic Medical College, Los Angeles, 1906. Licensed in California, 1911. Doctor Hickox was a member of the Alameda County Medical Society, the California Medical Association, and a Fellow of the American Medical Association.

MacLeish, Archibald Lyle. Died at Los Angeles, May 21, 1930, age 76 years. Graduate of University of Edinburgh Faculty of Medicine, Edinburgh, 1881. Licensed in California, 1894. Doctor MacLeish was a member of the Los Angeles County Medical Association, the California Medical Association, and a Fellow of the American Medical Association.

Nahl, Constante Alexander. Died at Sacramento, June 8, 1930, age 52 years. Graduate of Cooper Medical College, San Francisco, 1902. Licensed in California, 1902. Doctor Nahl was a member of the Sacramento Society for Medical Improvement, the California Medical Association, and a Fellow of the American Medical Association.

Ring, Hogan J. Died April 26, 1930, age 79 years. Graduate of Bennett Medical College, Chicago, 1877. Licensed in California, 1888. Doctor Ring was a member of the Humboldt County Medical Society, the California Medical Association, and the American Medical Association.

Ruble, George Clyde. Died at Los Angeles, June 3, 1930, age 32 years. Graduate of University of Oklahoma School of Medicine, Oklahoma City, 1922. Licensed in California, 1927. Doctor Ruble was a member of Orange County Medical Society, the California Medical Association, and the American Medical Association.

Ryan, Louis X. Died at Lake County, May 21, 1930. Graduate of University of California School of Medicine, San Francisco, 1905. Licensed in California, 1905. Doctor Ryan was a member of the San Francisco County Medical Society, the California Medical Association, and a Fellow of the American Medical Association.

Schooling, H. Guy. Died at Los Angeles, March 6, 1930, age 58 years. Graduate of Lincoln Medical College, 1901. Licensed in California, 1921. Doctor Schooling was a member of the Los Angeles County Medical Association, the California Medical Association, and a Fellow of the American Medical Association.

Shank, George Austin. Died at Santa Ana, May 20, 1930, age 68 years. Graduate of Kentucky School of Medicine, Louisville, 1898. Licensed in California, 1898. Doctor Shank was a member of Orange County Medical Society, the California Medical Association, and the American Medical Association.

Threadgill, Jesse Mercer. Died at Hollywood, June 11, 1930, age 57 years. Graduate of Missouri College of Medicine and Science, St. Louis, 1898. Licensed in California, 1922. Doctor Threadgill was a member of the Los Angeles County Medical Association, the California Medical Association, and a Fellow of the American Medical Association.

NEVADA STATE MEDICAL ASSOCIATION

W. A. SHAW.....	President
R. P. ROANTREE, Elko.....	President-Elect
H. W. SAWYER, Fallon.....	First Vice-President
E. E. HAMER, Carson City.....	Second Vice-President
HORACE J. BROWN.....	Secretary-Treasurer
R. P. ROANTREE, D. A. TURNER,	
S. K. MORRISON.....	Trustees

COMPONENT COUNTY SOCIETIES

WASHOE COUNTY

The regular meeting of the Washoe County Medical Society was held in the County Library hall on the evening of June 10, Doctor Hamer, president, presiding.

The only case report of the evening was that presented by Dr. E. E. Hamer, secretary of the Nevada State Board of Health. This was of unusual interest, being the first medically reported case of legal execution by hydrocyanic gas reported in the world's history. The report was as follows:

"Report of the execution of Robert H. White by hydrocyanic acid gas on June 2, 1930, at Nevada State Prison:

"A study of the heart and respiratory action was made at the time of the execution, a Bowles' stethoscope being applied on the bare chest wall over the apex of the heart. The tube leading to the ear pieces on the outside of the prison wall was connected to the stethoscope while the prisoner was being strapped to the chair.

"This was at 4:36 a. m. Heart action at that time was 108, strong and regular. The gas was started generating at 4:37½. At 4:38 the pulse rate was 120, regular and strong. A small inspiration was taken at 4:37¾, at which time the prisoner indicated that he smelled the gas. At 4:38 he took a very deep inspiration, turning his head toward the gas. He gave a spasmodic cough and his head fell forward and he became unconscious. Following this first deep inspiration there was a complete stopping of the heart action for fifteen seconds. After that short period of time or at 4:38½, the heart again began to beat in an irregular manner which continued for fifteen seconds and then became regular and strong. There was no apparent loss of power of the heart action. After this time, for two minutes the heart became slower, beating one hundred times per minute at 4:41½, and eighty times per minute at 4:44. At 4:46½ the heartbeats were distinctly regular, but becoming very weak. The last heart-beat was noted at 4:47.

"Respirations during the time after the first deep inspiration were convulsive and irregular.

"There is no doubt that the prisoner was unconscious after the first deep inspiration. His head was thrown backward and remained in that position after the fifth or sixth inspiration or for two minutes, when it fell forward and there was no further movement of the head."

* * *

Dr. DaCosta presented the following resolutions on the death of Dr. Alex McIntyre, who died at his home in Reno of chronic myocarditis on May 24.

The secretary was ordered to forward copy of the same to the widow and daughter and incorporate copy of same in the minutes.

IN MEMORIAM—ALEX MCINTYRE, M. D.

Whereas, Almighty God in his infinite wisdom has seen fit to remove from our midst our beloved confrère Dr. Alexander McIntyre; and

Whereas, For many years we have known Doctor McIntyre as a competent, conscientious and ethical member of our profession, and as a true friend and an upright citizen with whom it has been, at all times, a very great pleasure to associate; now be it therefore

Resolved, That we extend our sincere sympathy to his loved ones in this their hour of darkness and sorrow, and it is our hope that He who doeth all things well will assuage their grief and through His

promise of a happy reunion on that great day, will lead them again through the path of sunshine and contentment; and be it further

Resolved, That this resolution be spread upon our minutes and that a copy therefore be sent to the bereaved family.

* * *

Next followed a resolution by Dr. J. L. Robinson on the subject of a Washoe County Community Hospital. The resolutions were accepted and endorsed by unanimous vote.

Upon motion of the secretary, and seconded, it was moved that the president appoint a hospital committee. The chair appointed Doctors J. L. Robinson, A. R. DaCosta, and W. L. Samuels as that committee.

"Surgical Treatment of Peptic Ulcers," a sixteen-millimeter cinema, kindly loaned us by the Davis and Geck suture people of Brooklyn, New York, was next shown. The society was very much pleased with this exhibition and tendered its thanks by personal letter to the Davis and Geck people. The society also expressed its appreciation to Doctor Morrison for bringing his machine and taking charge of the films.

There being no further business the society stood adjourned.

THOMAS W. BATH, *Secretary*.

UTAH STATE MEDICAL ASSOCIATION

H. P. KIRTLEY, Salt Lake City.....President
WILLIAM L. RICH, Salt Lake City.....President-Elect
M. M. CRITCHLOW, Salt Lake City.....Secretary
J. U. GIESY, 701 Medical Arts Building,
Salt Lake City.....Associate Editor for Utah

OFFICIAL NOTICE

Notice of all members is called to the dates set for the 1930 meeting of the Utah State Medical Association to be held in Salt Lake City, September 9, 10, and 11.

The program, while not completed to a point where it can be definitely announced, will include President Morgan of the American Medical Association, Leo Eloesser of San Francisco, and Doctors Worthin, Ivy and Muhl.

Dates for the postgraduate classes of instruction have not as yet been decided, but will be announced next month.

COMPONENT COUNTY SOCIETIES SALT LAKE COUNTY

A dinner meeting of the Salt Lake County Medical Society was held at the Newhouse Hotel on Monday evening, May 12.

The meeting was called to order at 8:30 o'clock by President M. M. Nielson, who introduced the speaker of the evening, Dr. Russell Lee of San Francisco.

Doctor Lee read a paper on "Poliomyelitis." This paper was discussed by M. M. Nielson, T. B. Beatty, Ralph Pendleton, and G. G. Richards. Dr. W. Shephard of San Francisco spoke for a few minutes about the program of the convention of the Western Division of the State Health Officers, which is to be held at the Utah Hotel, Salt Lake City, June 12, 13, and 14.

The meeting was adjourned at 9:50 o'clock. Forty-eight members and five visitors were present.

BARNET E. BONAR, *Secretary*.

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UTAH COUNTY

The last meeting of the Utah County Medical Society was held at the Hotel Roberts on May 28. Dinner, as usual, preceded the scientific program.

The latter consisted of a talk by Dr. Laurence Snow of Salt Lake City on "Back Pain," following which two moving pictures were also shown. One

of these was "Peptic Ulcer and Its Surgical Treatment," and the other "The Relation of Absorbable Sutures to Wound Healing."

Eighteen members were present. No business was taken up. This was the final meeting of the society until next October.

J. L. AIRD, *Secretary*.

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WEBER COUNTY

At the regular meeting of the Weber County Medical Society held in the Hotel Bigelow on May 22, Dr. H. B. Daines of Ogden and Dr. G. D. Rutledge of Kaysville were accepted to membership in the county society.

Dr. F. Goeltz of the Salt Lake County Medical Society was guest speaker of the evening. His subject was "Early Diagnosis of Tuberculosis of the Kidneys."

Dr. Clark Rich has just returned from a few months' postgraduate study in European clinics.

CONRAD H. JENSON, *Secretary*.

UTAH NEWS

The first meeting of the Western Branch of the American Public Health Association was held in the Utah Hotel, June 12 to 14 inclusive.

The meeting was characterized by a series of luncheons and scientific sessions, with a public meeting on the nights of June 12 and 13.

High points of interest were a symposium on Rocky Mountain fever, one on the control of parasites, and one on meningitis, covering its epidemiology, bacteriology and serology, recent outbreaks, and intermountain incidence. Tuberculosis was also discussed in the light of recent progress, and undulant fever was touched upon. At the Thursday night public meeting, Dr. H. P. Kirtley, president of the Utah State Medical Association, addressed the meeting on "Utah's Public Health," and at the Friday night meeting, Dr. Langley Porter of the Medical School of the University of California spoke on "Keeping the Family Well."

Other topics touched upon at the Saturday session were included in a symposium on sanitation, the advance of health education, the development of public health nursing in the West, and preventive dentistry.

The annual dinner at Saltair and the installation of newly elected officers closed the session Saturday night.

A Consulting Service for Epidemic Meningitis.—A consulting diagnostic service for epidemic meningitis under the auspices of the Department of Public Health and comparable with that now offered for poliomyelitis by the Harvard Infantile Paralysis Commission marks a forward step in communicable disease control. Upon request of the attending physician, a representative of the department will see a case of suspected meningitis with him, and if so desired will be ready to confirm the diagnosis by laboratory methods at the bedside.

Every communicable disease presents special problems which must be met in attempting control. For diphtheria the state now offers free diagnostic laboratory service; this same service for meningitis must be available at the bedside. Attempts to check the spread of the disease have been notoriously discouraging, but early diagnosis and treatment have materially contributed to a lowered fatality. It is hoped that through the proposed service diagnostic facilities comparable to those found in large hospitals may be made readily available to every physician within the state.

While the meningitis situation in Massachusetts is not alarming, the increasing prevalence throughout the country should prompt every practitioner to watch for the disease. The establishment of a meningitis service is a valuable precaution against a future emergency. Its success will depend upon the reception accorded it by the profession.—*The New England Journal of Medicine*, March 13, 1930.

MISCELLANY

Items for the News column must be furnished by the twentieth of the preceding month. Under this department are grouped: News; Medical Economics; Correspondence; Department of Public Health; California Board of Medical Examiners; and Twenty-Five Years Ago. For Book Reviews, see index on the front cover, under Miscellany.

NEWS

Luncheon Meeting of California District Hospital Social Workers.—At the California Conference of Social Workers held in Santa Barbara, the California District of American Association of Hospital Social Workers gave a luncheon on May 16, at which sixty-five social workers were present. The luncheon was presided over by Miss Evelyn Z. Phelps of the American Red Cross and president of the organization.

Dr. Edward I. Glaser, a member of the advisory board, spoke of what he thought should be the aims of the organization. Dr. Guy Milberry, dean of the University of California Dental College, spoke on social service work in the Hawaiian Islands.

The luncheon was followed by round-table talks, at which the subjects discussed were: "Objectives in Medical Social Case Work" by Eleanor Barnes of San Francisco; also a paper on "Medical Social Workers' Relationship to Community Agencies" by Miss Z. Buben of Los Angeles.

American College of Surgeons.—The twentieth annual clinical congress of the American College of Surgeons will be held in Philadelphia, October 13-17. The plans for this year's congress include attractive programs for a series of five evening meetings, beginning with the presidential meeting on Monday evening at which the president-elect, Dr. C. Jeff Miller of New Orleans, will be inaugurated. The Murphy oration in surgery will be another feature of that evening's session. For the scientific sessions on Tuesday, Wednesday, and Thursday evenings there will be orations and papers by eminent surgeons of the United States and Canada and distinguished visitors from abroad, dealing with various surgical subjects of present-day importance. The annual convocation of the college will be held on Friday evening.

Annual Meeting of Hospital Social Workers.—Three hundred members of the American Association of Hospital Social Workers met in Boston for the largest annual meeting ever held. The meeting next year will be in Minneapolis, Minnesota.

The following officers were elected: President, Edith M. Baker, Washington University Dispensary and Allied Hospitals, St. Louis, Missouri; first vice-president, Ruth Emerson, University of Chicago Clinics, Chicago, Illinois; second vice-president, Ruth Wadman, American Red Cross, Washington, D. C.; third vice-president, E. Louise Adams, St. Luke's Hospital, New York, New York; secretary, Edith J. McComb, St. Christopher's Hospital, Philadelphia, Pennsylvania; treasurer, Marie Lurie, Jewish Tuberculosis Service, Chicago, Illinois; executive committee, Mary A. Burke, Montreal General Hospital, Montreal, Canada; and Marguerite Spiers, Berkeley Health Center, Berkeley, California.

Perhaps the outstanding gathering of the meeting was the dinner held in cooperation with the Massachusetts General Hospital in celebration of the twenty-fifth anniversary of the establishment of the Social Service Department in that institution. Dr. Richard Cabot and Mrs. John Glenn were the speakers of the evening.

The John Phillips Memorial Prize.—The American College of Physicians announces the John Phillips Memorial Prize of \$1500, to be awarded for the most

meritorious contribution in internal medicine and sciences contributing thereto, under the following conditions:

1. The contribution must be submitted in the form of a thesis or dissertation based upon published or unpublished original work.

2. It must be mailed to the executive secretary of the American College of Physicians on or before August 31, 1930.

3. The thesis or dissertation must be in the English language, in triplicate, in typewritten or printed form, and the work upon which it is based must have been done in whole or in part in the United States or Canada.

4. The recipient of the prize would be expected to read the essay at the next annual meeting of the college, after which he would be officially presented with the prize by the president.

5. The college reserves the right to make no award of the prize if a sufficient meritorious piece of work has not been received.

6. The announcement of the prize winner will be made not later than two months before the annual meeting.

American College of Physicians, E. R. Loveland, Executive Secretary, 133-135 South Thirty-sixth Street, Philadelphia, Pennsylvania.—*Illinois Medical Journal*, June 1930.

CORRESPONDENCE

Subject of Following Letter: What Not to Do in Gastric Ulcer

To the Editors of California and Western Medicine:

It is astounding to note at times the way in which physicians reach a diagnosis of peptic ulcer and how they propose to treat it. A common story frequently heard is that the patient consulted his neighborhood doctor because of a more or less persistent indigestion. The doctor, without any careful and painstaking analysis of the patient's symptoms, without a complete physical examination and occasionally without any at all, without the slightest attempt to determine the stomach's secretion and motility by a test-meal, sends him at once for an "x-ray picture." If the x-ray report comes back "ulcer," that seems to settle the matter for the average practitioner and he never questions this dictum. Then he tells the patient there are but two courses open; either immediate operation or else rest in bed for at least two weeks, on a very limited diet. The result of this latter plan is loss of time, weight and courage, but only too often no loss of symptoms.

I wish to protest that the x-ray technician, valuable as his services are, has no right to diagnose ulcer without correlation of his findings with all the other clinical evidence available; and that by doing so he encourages lazy members of the medical profession to accept this short cut to diagnosis without giving the patient the benefit of other methods of investigation. Furthermore, I protest that when ulcer is present surgical treatment should be the last resort, after all other plans of management have failed; and even then it should be recognized that surgical treatment of ulcer is not infallible by any means, and that the last state of a patient after operation may be even worse than the first. Finally, every uncomplicated

case of ulcer has the right to ambulatory treatment at the outset, by proper diet and by alkaline medication, without loss of time from work and without loss of weight and efficiency; with the understanding that most of them on such a plan get rid of their symptoms and do as well as after more energetic measures.

These conclusions are the result of a good many years of personal experience, are generally accepted as correct by those who have the most experience; and are only repeated now because there seems to be so many who are not yet familiar with them.

WILLIAM FITCH CHENEY.

Shreve Building, San Francisco.

TWENTY-FIVE YEARS AGO *

EXCERPTS FROM OUR STATE MEDICAL JOURNAL

Vol. III, No. 7, July 1905

From some editorial notes:

State Journals.—With July, two new state society journals will make their appearance; the medical associations of Ohio and Texas have recently so voted. We shall be very glad to welcome these journals when they appear, and we certainly extend to them every good wish for long, successful and upright lives. . . .

The Rules of the Council.—By a curious coincidence, two items were received in the office of the journal within the hour. One was a copy of the *Journal A. M. A.* for June 3, and the other was a box containing what appears to be several original packages of a medicinal preparation known as sal hepatica. . . . The journal mentioned contains the advertisement of sal hepatica, in which it is recommended for the treatment of typhoid fever, etc.; so it evidently is regarded as a medicine. The nearest approach to a formula is, "Sal hepatica is composed of the chemically pure salts which analysis has shown to be present in the most celebrated purgative, 'Bitter Waters,' of Europe." The names or the quantities of these salts are matters left to the imagination. . . .

From an article on "The Use of Hyoscin Hydrobromate in the Treatment of the Morphin Habit, With Report of Cases" by R. E. Bering, M. D., Tulare.

When we read the various textbooks on the treatment of the morphin habit, written by some of the ablest men in the country, and endeavor to carry out the plan of treatment suggested, it is no wonder so few physicians in general practice ever undertake to free their unfortunate patients from this dreaded curse, with all its accompanying nervous manifestations, collapse, oftentimes death, and suffering that no words can describe. . . .

From an article on "Uncinariasis in California, Based on Observation of Sixty-Two Cases" by Herbert Gunn, M. D., San Francisco.

The reasons which prompted the writer to investigate the subject under consideration were that during the year 1904 he encountered, comparatively speaking, a somewhat unusual number of cases of uncinariasis, in the ordinary course of practice and in his service in Doctor Hirschfelder's wards of the City and County Hospital of San Francisco, and that he became aware of the fact that quite a number of Porto Ricans were located in this state. The belief that the disease was being overlooked, and that a somewhat extensive importation had occurred, was found upon investigation to be justified.

Only two years ago it was stated that only thirty-eight cases of uncinariasis had been reported in the United States. Since that date many cases have been

* This column strives to mirror the work and aims of colleagues who bore the brunt of state society work some twenty-five years ago. It is hoped that such presentation will be of interest to both old and recent members.

found to be endemic in many of the southern states, as far west as Texas. . . .

From an article on "A Case of Human Glanders" by William Fitch Cheney, M. D., San Francisco.

. . . I have tried to secure some statistics as to the incidence of human glanders in California, but can find none. The secretary of the State Board of Health, in reply to my inquiry, writes me that the board has no statistics on the subject, and there seems to be no way to discover in how many instances human glanders has been assigned as a cause of death in the state. . . .

From medical society reports:

Monterey County.—To His Excellency, George C. Pardee: At a regular meeting of the Monterey County Medical Society, held at Monterey on April 1, 1905, the following was unanimously adopted:

Whereas, The medical profession is honored by having one of our esteemed members the Governor of our fair state; and

Whereas, He has safely piloted the California ship of state with flying colors through two legislative tempests—his course being marked patriotism, sound judgment and loyalty to his beloved profession; and

Whereas, His recent act in vetoing the vicious anti-vaccination bill, and his unanswerable logic in defense of that action, shows us that he is "not only George C. Pardee, but Doctor Pardee, a physician of integrity"; be it

Resolved, By the Monterey County Medical Society that we heartily commend the action of Governor George C. Pardee in thus guarding the health, wealth and reputation of our state; and be it further

Resolved, That we consider that the further and continued service of Doctor Pardee in the gubernatorial chair will safeguard the best interests of both our state and profession, and to that end we give him our best wishes; and be it further

Resolved, That our secretary be hereby instructed to send a copy of these resolutions to Governor Pardee, to the *California State Journal of Medicine*, and the local press, and that a copy be placed upon our books.

D. BRUMWELL, Secretary.

DEPARTMENT OF PUBLIC HEALTH

By W. M. DICKIE, Director

Many Adults Anxiously Seek Birth Certificates.—

With the great stimulus that has been given to travel in foreign countries, the Bureau of Vital Statistics of the State Department of Public Health has experienced a great rush in the demand for certified copies of certificates of birth. These are desired by individuals who wish to secure passports and who desire to secure certified copies of their birth certificates as evidence of their citizenship to facilitate the securing of such passports.

Individuals who were born in California since July of 1905, when the state registration of vital statistics began, have little or no trouble in securing copies of their birth certificates, but individuals who were born before that time are experiencing great difficulty in securing evidence of birth. Many such individuals have just come to a full realization of the importance of the birth certificate as a legal document, and many of them have petitioned the superior court of the county in which they were born to establish fact of birth. This is an expensive procedure for most people and it emphasizes again the importance of securing the registration at time of birth of every birth that may occur.

Among the important proofs which are supplied by the evidence presented in birth certificates are proofs of age, citizenship, inheritance rights, and lineage.

Legal evidence regarding age is required in many places for the purpose of gaining entrance to school, securing the right to employment, to vote, to drive an automobile, to marry, and to enlist in military service. Birth certificates are also of value in connection with jury duty, in criminal procedure, in the establishment of legal dependency, and other legal and social uses. Proof of citizenship is especially valuable with relation to the ownership of property, the right to hold certain offices, to enter civil service, to gain admission to certain professions, to secure exemption from military service in foreign countries, and to collect compensation from the government. Birth certificates are used constantly to secure war compensation, to prove claims of widows and orphans, to secure state aid and other charities, to collect pensions, and to prove other matters where it is necessary to establish parentage. There are very few activities, in fact, where the birth certificate may not be used to great advantage by any individual, and in many cases it is an essential requirement.

With the added complications that come into the expanding social system the birth certificate takes on an added significance. It is probable, in fact, that the time is not far distant when every individual will find it necessary to carry a copy of his birth certificate with him at all times. Many individuals, in fact, now carry small photographic copies of their birth certificates with them, at all times, along with their license to operate a motor vehicle, club membership cards and similar identifications. It may not be long before this custom becomes universal in its application.

Imperial Organizes Full-Time County Health Unit. The board of supervisors of Imperial County have organized the health department of that county upon a full-time basis. They have provided an annual budget of more than \$15,000 and have appointed Dr. Warren Fox, formerly city health officer of Pasadena and more recently connected with the Los Angeles County Health Department, as health officer of Imperial County. Doctor Fox will have adequate assistance in public health nurses, dairy and milk inspector, sanitary inspector and laboratory technician, in addition to office and clerical help. The United States Public Health Service will be responsible for a small portion of the annual budget, but most of the funds are provided by the county board of supervisors. Imperial is the fourteenth California county to organize upon a full-time basis.

Public Health Courses at Michigan.—The Division of Hygiene, Public Health and Physical Education of the University of Michigan at Ann Arbor has announced courses in public health to be given during the coming summer session of the university, June 30 to August 8. The courses offered cover many phases of public health administration, including child hygiene, public health nursing, nutrition, vital statistics, epidemiology, industrial hygiene, and many other related subjects. Dr. John Sundwall is the director of the Department of Hygiene and Public Health at Michigan.

Status of Epidemic Poliomyelitis.—There have been eighty-six cases of acute anterior poliomyelitis reported in California since the first of the year.

Since many cases are not recognized as acute anterior poliomyelitis, it is important that all cases which may be at all symptomatic of this disease be recognized and placed under control without delay.

It has been observed that in those years when poliomyelitis becomes unusually prevalent in the late spring and early summer, there is nearly always an extensive and disastrous outbreak of the disease in the late summer and early fall, when under normal conditions, the disease is seasonally more prevalent. The prompt institution of control measures at the present time, therefore, is of the utmost importance in order that the chances for a widespread epidemic during the coming fall may be minimized.

CALIFORNIA BOARD OF MEDICAL EXAMINERS

By C. B. PINKHAM, M. D.

Secretary of the Board

News Items, July 1930

Dr. J. B. Harris, recently elected president-elect of the California Medical Society, was the honored guest at a meeting of the Sutter Club members last night (Sacramento *Bee*, May 17, 1930).

The Federal Radio Commission refused today to renew the license of station KFKB, Milford, Kansas, which has broadcast a medical question box conducted by Dr. John R. Brinkley. The Kansas State Medical Association stated Brinkley was broadcasting objectionable matter (San Francisco *Examiner*, June 14, 1930).

R. H. Albrectondare (whose real name is said to be A. Hunhas) was reported to have been found guilty of a petty theft charge in the city of Los Angeles recently and sentenced to serve six months in the city jail. (Previous entries, June 1925; March 1926; February and December 1927.)

According to reports, Clayton C. Allen, unlicensed, was arrested in Los Angeles, January 30, 1930, for violation of the State Poison Law, and it is reported that there was found under a cupboard drawer in his bathroom a one-ounce can of morphin, two empty morphin cans, one hypodermic outfit, and one bundle of morphin.

Trial judges granting suspended sentences to those found guilty of a criminal offense without first referring the case to a probation officer, are acting in violation of the law as amended in 1929, is the conclusion reached from an opinion submitted by Attorney-General U. S. Webb . . . (Los Angeles *News*, May 21, 1930).

Sixty days each in the county jail was the sentence imposed upon Dr. Roy Ankenbrand, twenty-five, chiropractor, and Wilfred E. Collantz, thirty-two, for theft of money from perfume-vending machines (Los Angeles *Illustrated Daily News*, June 9, 1930).

Accused of having bilked hundreds of people in the bay region out of several thousand dollars on the representation that he was a member of the staff of the famous Mayo Brothers Institute of Rochester, Minnesota, a man giving the name of "Dr. Donald C. Balfour is today at the city prison charged with violating the State Medical Practice Act. He was arrested today by Inspector J. W. Davidson, State Board of Medical Examiners, and Lieutenant of Police James Milloy. Balfour admitted he had treated many people and had collected \$10 from each of them for his efforts (San Francisco *News*, May 13, 1930). According to the San Francisco *Examiner* of May 14, he paid a fine of \$100 for practicing medicine without a license and is quoted in the San Francisco *Call-Bulletin* of May 13 as stating, "I merely laid a hypodermic needle on the arms of my patients . . . and then while they looked the other way, I pinched them. They all claimed I cured them when other doctors failed." Barnum was right.

Shoulders back, chin up, his gray pompadour stretching upward to a point five feet four inches from the floor, Bernard Bernard, Sausalito physical culture director, today heard himself fined \$1000 by Federal Judge A. F. St. Sure for teaching people how to grow tall. A small fine was assessed against Louise Glover, five feet eleven inches. The two, according to postal authorities, used the mails to broadcast an offer to make anybody taller for \$8.75. Their income, inspectors said, ran around \$40,000 a year (San Francisco *News*, April 30, 1930).

Charged with second degree murder as the result of the death of Miss Jeannette Louis, 18-year-old Chinese girl, following an operation, S. Kayegama and Mrs. S. Ewa (Eda—licensed midwife) will face trial in Superior Court. The order holding them to answer was entered today by Police Judge J. C. Creighton. (Press dispatch dated Fresno, June 14, printed in the San Francisco *Examiner*, June 15, 1930.)

Eyesight racketeers, under a heavy fire of publicity in California, are still operating, Dr. Charles B. Pinkham, secretary of the State Board of Medical Examiners, said to day. . . . A pair posing as the "world-famous Dr. Miles of Chicago and his assistant" performed a bogus cataract operation on the eyes of an elderly woman near Fresno, netting \$2250 (San Francisco *News*, May 28, 1930). Miss A. C. Wellensick of Covina, California, recently reported delivering \$2300 to a pair of eyesight swindlers. William Sachau of Turlock recently delivered \$1000 in cash to a pair of these fakers, one of whom posed as the famous Doctor Peers of Detroit, following the time-worn scheme of alleged radium water in the eye and immediately removing a film which was exhibited to the victim as the cataract already dissolved. Mr. Sachau has identified from the pictures appearing in the pamphlet entitled "Eye Sight Swindlers" (published by the secretary of the Board of Medical Examiners) Roy L. Martin and Elliott Wilkinson as the individuals who mulcted him out of his hard-earned cash.

A. B. Gersabeck, also known as Alfred Bach, was adjudged guilty in the Justice Court of San Diego on June 4, 1930, and the following day was reported to have been sentenced to pay a fine of \$600 or serve 180 days in the county jail. "He was committed to jail in default of the payment of fine." According to reports, Bach's "racket" consists in inserting an advertisement for a nurse to take charge of a sanitarium which he proposes to open, and he is reported as having borrowed money from prospects to whom he promises a lucrative salary. It is reported when he appeared in court a half-hour prior to the time set for trial and saw the array of his victims waiting to testify, he suddenly became too ill to appear in court and attempted to get a statement from a physician which would warrant continuance of his case. (Prior entries, August and September 1926; July 1927; September 1928.)

Between six thousand and seven thousand narcotic prescriptions were written by Dr. C. M. Graham, Inglewood physician, in the last eighteen months, according to charges of federal officers today following the physician's arrest in his offices. Doctor Graham asserted he had given the prescriptions only to relieve pain, but the officers declared his records showed at least one case where a narcotic prescription was issued to the same person every other day for many months. They were written in the name of Ben Franklin Jacobs, who is said by the officer to be serving a six months' term in the San Diego jail for drug addiction. . . . (Los Angeles *Express*, May 15, 1930.)

According to report, Walter Winston Hopson, colored physician of Los Angeles, was arrested by the city and state narcotic squads on a charge of violation of the State Poison Law. He is alleged to have entered into an agreement with Benjamin C. Colly, a druggist, that Colly was to fill narcotic prescriptions by giving to the patient the narcotic contents of prescriptions only. Colly in a signed statement to the police alleges that Hopson told him to do this.

Dr. Eben Jones, 41-year-old chiropractor, held for trial in Superior Court for the death of Mrs. Rose Marshall of 5512 Willow Crest Drive, following an alleged illegal operation, was released today by Municipal Judge Louis Russell on \$10,000 bail. . . . (Los Angeles *Herald*, May 28, 1930.)

With "Dr." Orlando E. Miller, erstwhile psychologist, still a fugitive from justice as the alleged ring-leader, Fred G. Collett, his colleague, is due for a second trial on mail fraud charges on May 17. "Dr." Miller was President and Collect vice-president of the Rellimeo Film Syndicate, organized for the production of motion pictures, but was only a stock promotion scheme, the Government charges. Misrepresentations by mail were used to induce many persons to invest thousands of dollars in stock of the now defunct syndicate, it is alleged. . . . (San Francisco *Call-Bulletin*, May 10, 1930). (Previous entries, June, October, and November 1926; March 1927; March 1928; December 1929.)

According to reports of our Investigation Department, E. R. Morris, formerly radio announcer for KMIC at Inglewood, was recently arrested on a charge of violation of the Medical Practice Act, it being alleged that he, in association with Prince Charles Stuart, was introduced to prospective patients as "Dr. Morris" and charged \$15 per bottle for medicine.

Bernard Bernard, physical culturist of Sausalito, and his secretary, Miss Louise Glover, pleaded guilty yesterday to charges of using the mails to defraud. United States District Judge A. F. St. Sure imposed \$1000 fines. Bernard is five feet four inches tall. He has an apparatus and a course of instruction which he claims, in his circulars sent through the mail, would make short people tall. His yearly income was said to be \$40,000 from the sale of this apparatus. The government declared that it is impossible to increase the height of adults, and Bernard and his secretary were indicted each on five counts (San Francisco *Examiner*, May 1, 1930).

The writ of prohibition brought by Dr. Francis J. Bold against the Board of Medical Examiners to stop the hearing of charges before that board, based upon an alleged illegal operation, was dissolved by Superior Judge Ruben S. Schmidt of Los Angeles April 23, 1930, and the hearing is scheduled for the coming July meeting.

With an assortment of moonstones, charms, a rosary, curious nostrums and patent medicines in his possession, M. C. Berryessa, basque voodoo doctor, was in jail today following his arrest for practicing medicine without a license. . . . Charms and amulets, used in casting spells, formed a large part of the equipment used by the voodoo practitioner, authorities believe. . . . (Visalia *Times-Delta*, April 25, 1930).

Revocation of the medical certificate of Dr. John Richard Brinkley, formerly well known in San Francisco as a gland specialist, was sought yesterday by the State of Kansas. Charges of gross immorality, unprofessional conduct, fraud and deception, were filed in Topeka by Dr. L. F. Barney, former president of the Kansas Medical Society, according to an Associated Press dispatch. Brinkley, who makes his headquarters at Milford, Kansas, was indicted in San Francisco in 1924 on charges of conspiracy in connection with an alleged nation-wide "diploma mill." His extradition was demanded, but refused by the Governor of Kansas (San Francisco *Examiner*, April 30, 1930).

Members of the California Chiropractic Association, which had filed charges with Governor C. C. Young against the State Board of Chiropractic Examiners, failed to appear Saturday afternoon for the hearing they had requested. After several hours' wait for the complainants to appear, James F. Collins, director and professional and vocational standards, and Harold Landreth, private secretary to the Governor, who were holding the hearing, allowed the board to present its evidence in refutation of the written charges previously filed (Sacramento *Bee*, April 21, 1930).

XIII. INDEX TO REPORT OF BOARD OF MEDICAL EXAMINERS

(Index to News Items, Vol. 32, January to June 1930)

Abortion—See:

Bold, Francis J., M. D.
Darrow, George E., M. D.
de Vaughn, Oscar W., M. D.
Edwards, Clarence, M. D.
Goodhall, Florence, D. C.
Ham, James G., M. D.
Howe, Raymond C., D. C.
Lang, William A., M. D.
McKinney, Versa I.
Tapley, Fred B., M. D.
Accardo, Giuseppe, p. 303.
Agnew, William P., M. D., Complaint re McGowan, p. 216.
Allen, Dr. Clayton, p. 376.
Allison, L., p. 304.
Anderson, Nell E., p. 375.
Anglo-Oriental Medical Correspondence School, p. 464.
Annual Report, Board of Medical Examiners, pp. 144, 302.

Appointments:

Board of Medical Examiners, p. 144.
Brown, Harry V., M. D., appointed.
Emerson, Mark L., M. D., health officer, Oakland.
Fancher, Charles R., M. D., city commissioner, Oakland.
Johnston, J. C., M. D., to Spadra.
Lyman, R. M., Jr., attorney medical board, p. 72.
Maupin, James L., M. D., re-appointed.
Molony, William R., M. D., re-appointed.
Phillips, Percy T., M. D., re-appointed.
Pinkham, Charles B., M. D., re-appointed.
Ritchie, Charles, M. D., to Mendocino State Hospital, p. 72.
Ryfkogel, H. A. L., appointed.
Smith, Harry D., United States Narcotic Supervisor.
Smyth, Margaret, M. D., to Stockton State Hospital, p. 72.

Barrett, Minnie Bell, p. 464. See beauty specialists; Tricho.

Barrington, Willie Carlos, p. 72.

Beauty Specialist:

See Burton, Mrs. A. E.; cosmetology; Tricho.

Benson, "Dr." Arthur, p. 464.

Berkeley Chiropractic College—Appeal dismissed, p. 144.

Board of Chiropractic Examiners, p. 144.

Board of Medical Examiners: See annual report; appointments; examinations.

Bold, Francis J., M. D., pp. 72, 144, 304, 375.

Brown, Harry V., M. D., reappointed on Board of Medical Examiners, p. 144.

Bunco schemes: See Miller, George, p. 375; Webb, Arthur, p. 376.
Burton, Mrs. A. E., p. 144.

Cale, Charles A., D. C., p. 144.

Cambridge University, See Gonzales, D. Caron, Marie, p. 375.

Certificates:

Restored:

Hadley, James A., M. D.

Revoked:

Darrow, George E., M. D.

Lang, William A., M. D.

Moore, McKenery, M. D.

Tapley, Fred B., M. D.

Chase, Frank, M. D., p. 72.

Chinese Violators:

Chun, Dun.

Hing, T. Wah.

Tso, L. P.

Chiropractic Initiative, p. 375.

Chiropractor:

Guilty as advertising as chiropractor—See Throop, H. G., p. 144.

Vice joints.

Violators. See Cale, Charles A.; Goodhall, Florence; Howe, Raymond C.

Chirothesian. See LeBelle, Maurice, p. 376.

Chono, Motoharu, p. 375.

Citations:

Bold, Francis James, M. D.
Cramer, Floyd E., M. D.
Darrow, George E., M. D.
DeVaughn, Oscar W., M. D.
Edwards, Clarence, M. D.
Lang, William A., M. D.
Moore, William McKenery, M. D.
Tapley, Fred B., M. D.

Citron, I. Jesse, M. D., p. 216.

Clayton, A. S., p. 304.

Columbia University, College of Physicians and Surgeons. See Gonzales. Democrito (fake diploma).

Cornell, Dr. Joseph, p. 72.

Corporations Cannot Practice Medicine, p. 464.

Cosmetologists Violating Medical Act: (See beauty specialists.)

Anderson, Nell E., p. 375.

Barrett, Minnie Bell, p. 464.

Burton, Mrs. A. E., p. 144.

Francis, Lucille, p. 376.

Cottrell, Samuel, M. D., p. 376.

Court Decisions:

Corporations cannot practice medicine, p. 464.

Judge Johnson sustains revocation of Tapley license, p. 276.

Petition for Writ of Review under advisement, p. 304.

Craig, Lucy V., p. 304.

Cramer, Floyd E., M. D., pp. 144, 216.

Credentials:

Fraudulent—See:

Cambridge University.

Columbia University.

Gonzales, Democrito.

Johns Hopkins University.

McCowan, Arthur.

Webb, Arthur.

Stolen—See:

Eisenbach, Maurice.

Marks, Joseph H.

McCowan, Arthur.

Darius, Magnetic, p. 464. See Hogan, Terrence.

Darrow, George E., M. D. Sentenced, abortion, p. 72; certificate revoked, p. 216.

DeVaughn, Oscar W., M. D., p. 144.

Diploma Mills—See:

Dun Chun.

Gonzales, Democrito.

Koba, Tsuneyoshi.

Miller, W. H. H.

Dock, George, M. D., p. 144.

Dominguez, Armando, p. 376.

Druggist fined for treating, p. 72.

Dun Chun, p. 464;

Edwards, Clarence E., M. D., p. 144.

Egan, Dr. I. S., p. 376.

Eisenbach, Maurice E., p. 304.

Electric needle specialist, p. 304. See Clayton, A. S.

English, Glen G., p. 376.

Estes, St. Louis, p. 376.

Examinations:

Nineteen twenty-nine statistics, p. 303.

October 1929, results, p. 71.

February 1930, results, p. 303.

Fake Credentials—See:

Cambridge University.

Columbia University.

Credentials.

Diploma mills.

Gonzales.

Johns Hopkins University.

Koba.

McCowan, A. C.

Francis, Lucille, p. 376. See cosmetologist.

Fraud (See Fake Credentials):

Benson, Arthur, sought for.

Eisenbach, Maurice.

Miller, George.

Webb, Arthur.

Fuller, F. P., Dr., p. 375.

George, P. S., p. 304.

Gonzales, Democrito, p. 72.

Goodhall, Florence, D. C., p. 144.

Hiffin, Robert (Health Studios, Inc.), p. 304.

Gunshot wounds—Failure to report penalized, pp. 304, 375.

Hadley, James A., M. D., certificate restored, p. 216.

Ham, James G., p. 376.

Health associations investigated, p. 304.

Health Studios, Inc., p. 304.

Hearings, p. 303.

Hillside Sanitarium, p. 216. See Shepherd, John P.

Hing, T. Wah, p. 304.

Hopkins, Dr. Walter W., narcotic violation, p. 376.

Hospital associations investigated, p. 304.

Howe, Raymond C., D. C., p. 464.

Illinois license frauds, p. 72. See diploma mills; Miller, W. H. H.

Impostors—See:

Eisenbach, Maurice.

Violators.

Webb, Arthur (alias McCowan).

Initiative—Chiropractic, p. 375.

Japanese Violators:

Chono, M.

Koba, Tsuneyoshi.

Johns Hopkins—Fraudulent Credentials:

See Koba, Tsuneyoshi.

Johnstone, J. C., M. D., appointed to Spadra, p. 72.

Kansas City University of Physicians and Surgeons. See Egan, I. S.; Kuhn, Walter E.

Kalman, S. S., M. D., p. 216.

Koba, Tsuneyoshi, p. 144.

Kuhn, Walter, p. 72.

Lang, William A., M. D. Citation, p. 144; revoked, p. 216.

LeBelle, Maurice, pp. 376, 464.

Legal—See:

Lyman, R. M., Jr.

Melvin, Bradford M.

Lyman, Richard M., Jr., p. 72.

Loye, Arthur G., p. 464.

Mann, S. M., M. D., p. 464.

Marks, Joseph H., M. D., p. 304.

Maupin, J. L., M. D., reappointed on Board of Medical Examiners, p. 144.

McCown, Arthur C., M. D. Credentials stolen, p. 216; see Webb, Arthur; culprit arrested, p. 376.

McKinney, Versa I., p. 376.

McPheeters, G. Carl H., M. D., p. 144.

Medical Service Corporation, p. 464.

Medicine—Corporations cannot practice, p. 464.

Melvin, Bradford M., p. 72.

Miller, F. P., Dr. Failure to report tuberculosis, p. 375.

Miller, George. Bunco game, p. 375.

Miller, W. H. H., p. 72.

Molony, William R., M. D., reappointed on Board of Medical Examiners, p. 144.

Moore, Wilson McKenery, M. D., p. 216.

Moraine, Esther, p. 376. See Estes, St. Louis.

Morton, Andrew W., M. D. Term on Board of Medical Examiners expires, p. 144.

Mott, Edwin L., M. D., p. 375.

Narcotic enforcement, p. 375.

Narcotic Violations:

Allen, Dr. Clayton.

Citron, Jesse I., M. D.

Cornell, Joseph, M. D.

Cottrell, Samuel, M. D.

Cramer, Floyd E., M. D.

Forged prescriptions.

Fraudulent checks.

Hopkins, Dr. Walter.

Kalman, S. S., M. D.

Mann, S. M., M. D.

Moore, Wilson McKenery, M. D.

Whitmore, William V., M. D.

Narcotic warning, p. 375.

National Health Foundation, p. 464.

Nurses buncoed, p. 375.

Phillips, Percy T., reappointed on Board of Medical Examiners, p. 144.

Pinkham, Charles B., M. D., reappointed on Board of Medical Examiners, p. 144.

Purviance, Percy, D. C., p. 144.

Radio broadcasting protested, p. 144.

Reed, Fred, p. 376.

Reports: See annual report; examinations.

Ritchie, Charles, M. D., p. 72.

Robertson, H. Miller, M. D., term on Board of Medical Examiners expires, p. 144.

Ryfkogel, H. A. L., M. D., appointed on Board of Medical Examiners, p. 144.

Shepherd, John P., p. 216.

Slocumb, Hugh H., M. D., p. 72.

Smith, Harry D., United States Narcotic Supervisor, p. 375.

Smith, Wilburn, M. D. Term on Board of Medical Examiners expired, p. 144.

Smyth, Margaret, M. D., superintendent Stockton State Hospital, p. 72.

Subpoena ignored, see Chase, Frank, p. 72.

Sweet, P. H., M. D., p. 303.

Tapley, Fred B., M. D. Revocation sustained, p. 216; petition for Writ of Review under advisement, p. 304;

indicted Grand Jury, abortion, p. 464.

Thayer Health Foundation, p. 464.

Threadgill, J. M., p. 304.

Throop, Dr. H. G., p. 304.

Tricho, damage suit against, p. 464.

Tso, L. P., p. 144.

Tuberculosis, penalty for not reporting, p. 375.

Varian, John O., p. 72.

Webb, Arthur, alias McCowan, p. 376.

Weltmer-Craig system, p. 304. See Allison, L.; Craig, Lucy V.

Whitmore, William V., M. D., 72.

Written examination. See examination.

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TRUTH ABOUT MEDICINES

(Continued from Page 31)

American Medical Association. A list of rejected foods will be published in the book, "Accepted Foods," together with the reasons for such rejections. Rejected products will not be permitted to be advertised in any publication of the American Medical Association. Infant foods, whether health claims are made for them or not, are considered to be within the scope of the committee's consideration.—*Jour. A. M. A.*, May 3, 1930, p. 1407.

The Seal of the Council on Pharmacy and Chemistry and of the Committee on Foods.—The seal may be used in advertising in circulars and on packages after acceptance of the product is announced. The seal, if it appears on the package, must be the only seal of such character and must not appear in conjunction with the seals of any other investigative organization. The seal is to be used without any comment by the advertisers, unless such comment has been submitted to the Council or the Committee and approved by them. Should the product, for any reason, become unacceptable, all use of the seal must be discontinued within six months. Only the seal

authorized by the body accepting the product shall be used in advertising the product. Products exempted by either the Council or the Committee shall be permitted to be advertised in publications of the American Medical Association but the use of the seal shall not be granted in connection with such advertising.—*Jour. A. M. A.*, May 3, 1930, p. 1407.

The Laxative Action of Bran.—Bran has acquired an extensive vogue in this country as an adjuvant to the diet to correct the widespread tendency to constipation. One of the features that particularly serves to recommend it in a popular way is the fact that it is not a drug.—*Jour. A. M. A.*, May 3, 1930, p. 1410.

John R. Brinkley, Quack.—Newspaper reports on John R. Brinkley, who has been described as the "goat-gland grafter," and who has made a Kansas crossroads settlement into a second-class postal station, continue to bring stories of the experiences of a few of Brinkley's victims. Also, the publicity has brought out other facts that, while doubtless not news to those who are fully acquainted with Brinkley, have been unknown to the general public and the medical profession.—*Jour. A. M. A.*, May 3, 1930, p. 1426.

(Continued on Page 36)

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TRUTH ABOUT MEDICINES

(Continued from Page 34)

Electrifiable Plates.—The Post Office Department reports that J. M. Hughes, his wife, Mrs. J. M. Hughes, and his daughter, Essie I. Hughes, all of Atlanta, Ga., have for some time been defrauding the public under the trade name, "Electrifiable Company," in the sale of so-called heel plates. These plates were crudely cut from sheets of copper and zinc. They cost 25 cents a pair; they sold at \$5 a pair! It was claimed that, when worn in the shoe, the plates would cure hardening of the arteries, high blood pressure, enlargement of the heart, kidney trouble, hardening of the prostate gland, diabetes, rheumatism and dropsy! The Postmaster General issued a fraud order against the Electrifiable Company and J. M. Hughes.—*Jour. A. M. A.*, May 3, 1930, p. 1427.

Plasmochin.—"Plasmochin Compound" is stated by the manufacturer to be "sugar coated pills containing 0.01 gm. of Plasmochin and 0.125 gm. of quinin sulphate." The only way in which Plasmochin may be characterized as "extremely dangerous" is that its safe (but efficient) dose is much smaller than that of quinin. Its most important untoward effect is cyanosis due to methemoglobin formation. Abdominal pains have also been produced by it. It is liable to cause the symptoms of cinchonism, such as tinnitus and dizziness; and it has been charged with favoring the occurrence of blackwater fever. The Council on Pharmacy and Chemistry published a preliminary report on Plasmochin in 1927, when the product was not being marketed in this country. Now the Winthrop Chemical Company markets "Plasmochin Compound" but has not taken steps to make this preparation accepted for New and Nonofficial Remedies.—*Jour. A. M. A.*, May 3, 1930, p. 1429.

The Activity of Official Preparations of Ergot.—Recently the conviction has grown among pharma-

Summer Diarrhea

The following formula provides a means of supplying the principal fuel utilized in the body for the production of heat and energy and furnishes immediately available nutrition well suited to protect the proteins of the body, to prevent rapid loss of weight, to resist the activity of putrefactive bacteria, and to favor a retention of fluids and salts in the body tissues:

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The usual custom is to give one to three ounces of this mixture every hour or two until the stools lessen in number and improve in character. The food mixture may then be gradually strengthened by substituting one ounce of skimmed milk for one ounce of water until the amount of skimmed milk is equal to the quantity of milk usually employed in normal conditions. Finally the fat of the milk may be gradually replaced, but as milk fat is likely to be digested with much difficulty after an attack of diarrhea it is good judgment to continue to leave out the cream until the baby has fully recovered.

Further details in relation to this subject and a supply of samples of Mellin's Food sent to physicians upon request.

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cologists that, while undoubtedly histamin and tyramin play a part in the pharmacologic responses to ergot under laboratory conditions, they have little or nothing to do with the action of ergot as used clinically. It is generally held at present that the alkaloids are the important constituents. With the development of this belief has come naturally an insistence that preparations offered to the medical profession should contain them. In 1929 the Council on Pharmacy and Chemistry omitted from New and Non-official Remedies those preparations of ergot which, from their method of manufacture, were not likely to contain, or were not shown by proper methods of assay to contain, important amounts of alkaloids. The United States Pharmacopeia not only prescribes an efficient method of extraction in the preparation of the fluidextract, the only official preparation, but requires in addition that the preparation be assayed by a biologic method which determines the alkaloidal content. An examination of the market supply of fluidextract of ergot made in 1928 revealed only one of five to have less than the required strength. In this examination most proprietary ergot preparations were found to be altogether inactive or distinctly below the strength claimed for them. Similar results for proprietary ergot preparations, some of which are marketed in this country, have recently been reported abroad. Two investigations have recently been published that indicate that the deterioration of fluidextract of ergot does not proceed rapidly. There is no real reason why the American physician should not continue to use with confidence fluidextracts made by reputable firms in accordance with the pharmacopeial method and shown by proper methods of assay to contain the activity required by the pharmacopeial standard. If he uses other than official preparations, he should convince himself that the non-official preparation used actually possesses the properties characteristic of a standard ergot preparation:

(Continued on Page 39)

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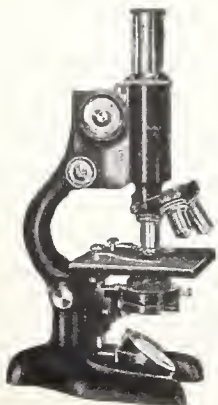
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TRUTH ABOUT MEDICINES

(Continued from Page 37)

if it has been accepted by the Council on Pharmacy and Chemistry for New and Nonofficial Remedies the composition and efficiency may be depended on.—*Jour. A. M. A.*, May 10, 1930, p. 1504.

The Action of Vitamin D.—Viosterol administered to animals over long periods in doses one hundred times greater than the minimum antirachitic level showed no effect on general appearance, growth, reproduction, or resistance to respiratory infections. An overdosage ten times greater was just perceptibly harmful four thousand times overdosage definitely injurious, and forty thousand times overdosage strongly toxic. Apparently the harmfulness may be modified by other dietary factors. Recent studies have made it clearer that vitamin D controls calcification of the skeleton by dissolution and deposition of the bone salts. The mineral content of the bones is the resultant of these two actions. Calcium and phosphorus must be present in the diet in sufficient amounts and in appropriate relationship to each other before proper bone growth or calcification can occur. No amount of vitamin can correct an absolute lack of bone-building salts.—*Jour. A. M. A.*, May 10, 1930, p. 1505.

Lanteen Laboratories, Inc.—A letter sent out by the "Medical Bureau of Information on Birth Control" states that the "Bureau" was not maintained for profit and that there was only a small charge of \$3 for a private consultation with a woman physician who was "specially trained in the science of birth control and the intimate facts of sex." This "Bureau" was previously called the "Mother's Birth Control Clinic," and apparently is a subsidiary of the Lanteen Laboratories, Inc., that was incorporated in 1928 under the name Chinolene Products Company, and which changed its name to the present style. A folder which the Lanteen Laboratories concern puts into

(Continued on Next Page)

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TRUTH ABOUT MEDICINES

Continued from Preceding Page)

the hands of women who go to it carries with it the implication that the methods used or recommended by the concern are "sure, safe, scientific" and never fail. The company has for sale various mechanical contraceptive devices and also medicinal preparations for local application. The latter are all given the generic name "Lanteen."—*Jour. A. M. A.*, May 17, 1930, p. 1619.

The Adjustor.—Under the trade names "Dale Manufacturing Company" and "J. Dale," there was exploited from Chicago another one of the glass vacuum pumps which have been sold as alleged cures for impotence. It was called the "Adjustor." When the Dale Manufacturing Company were notified by the postal authorities to show cause why a fraud order should not be issued against them, postponement of

action was requested. The "Adjustor"—also called the "Juvenator"—exploited by the Sampson Manufacturing Company, was declared a fraud in 1927. In 1928 the postal authorities issued a fraud order against the Vim Manufacturing Company and one A. Volta of Chicago, who conducted a scheme practically identical with that of the Sampson Manufacturing Company and the present concern, the Dale Manufacturing Company. In recommending the issuance of a fraud order against the Dale Manufacturing Company and J. Dale, the solicitor for the Post Office Department stated that the representations in the Vim Manufacturing Company scheme are identical with those being employed in the Dale Manufacturing Company scheme, and that the device offered for sale is the same, and that the promoter was simply changing his trade name and address to evade the effect of prior fraud orders. The fraud order was issued; also one against J. Veness, apparently another trade name

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used by the same quacks that conducted the Dale Manufacturing Company.—*Jour. A. M. A.*, May 17, 1930, p. 1619.

Rival Prophylactics in Diphtheria.—The early success with toxin-antitoxin in this country has given to it almost exclusive use in prophylaxis. There are, however, other effective ways of reducing the toxicity of diphtheria toxin besides partial neutralization with antitoxic serum. The products of these newer methods have been extensively used in Canada and in Europe. In the schools of Milwaukee from 1925 to 1928 the respective percentages of immunity achieved by the use of toxin-antitoxin were 85, 62, 75, and 69. With diphtheria toxoid better results were obtained, only 2 out of 128 giving positive Schick tests after treatment. Another claim in favor of diphtheria toxoid is that it does not result in sensitization to horse serum. However, it is not likely that toxin-antitoxin produces any noticeable sensitization; further, the toxin-antitoxin may be prepared with goat or sheep serum. Diphtheria toxoid would seem to be at least as valuable as diphtheria toxin-antitoxin mixture and in the preschool child is probably to be preferred.—*Jour. A. M. A.*, May 24, 1930, p. 1708.

Gold Sodium Thiosulphate in Lupus Erythematosus.—Gold salts have provided an effective method of treating lupus erythematosus. The treatment usually definitely improves the condition and often gets entirely rid of it. Gold sodium thiosulphate is the salt generally used in the United States. The initial dose is 10 milligrams dissolved in 2 cubic centimeters of sterile distilled water, given intravenously. If this is well tolerated, the second dose is 25 milligrams, given from five to seven days later. After this the dose is repeated at weekly intervals. Doses up to 50 milligrams may be administered and they have been as satisfactory as doses of 100 milligrams. Occasionally severe reactions result from the use of the drug. The drug should not be pushed when symptoms occur from it.—*Jour. A. M. A.*, May 24, 1930, p. 1715.

(Continued on Page 51)

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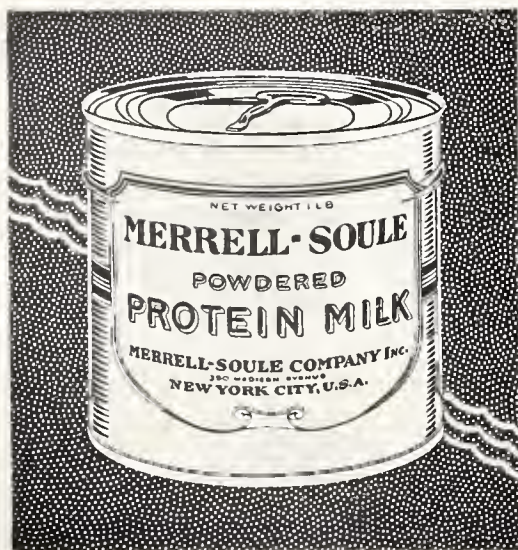
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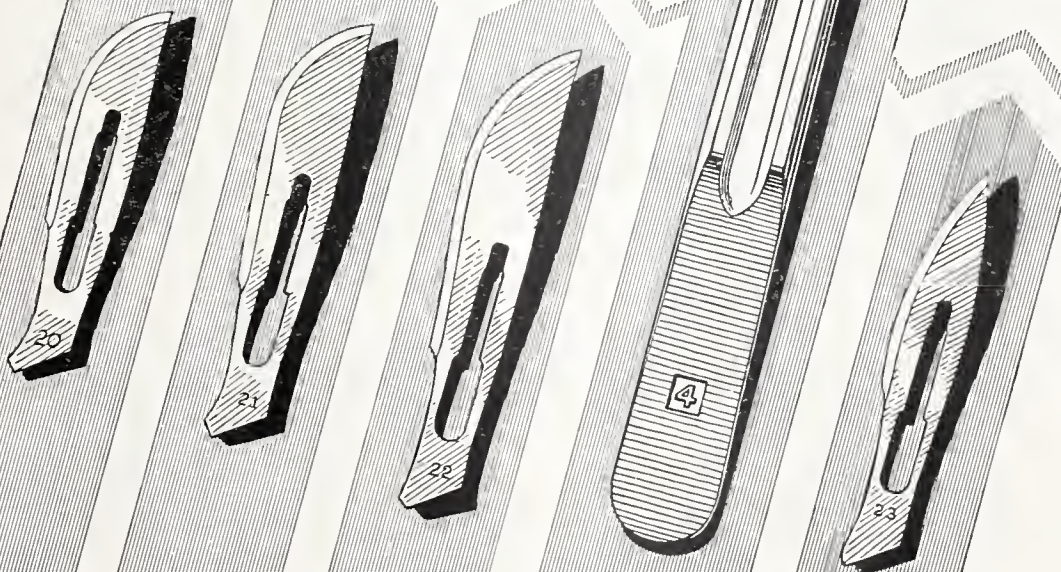
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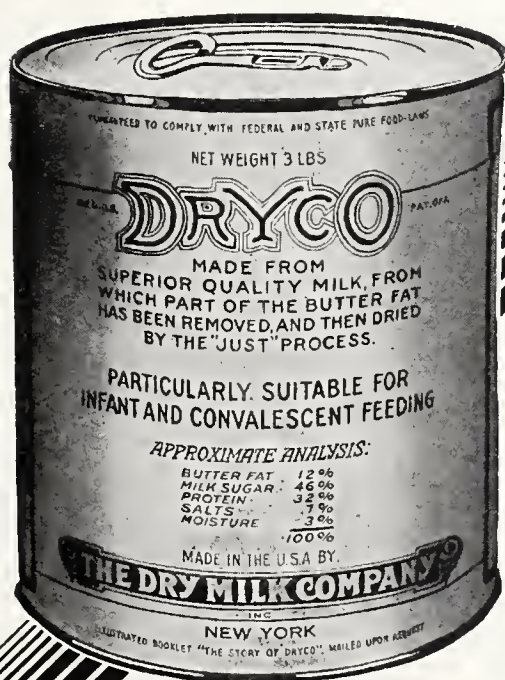
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"Only those clinical laboratories in which the space, equipment, finances, management, personnel and records are such as will insure honest, efficient and accurate work may expect to be listed as approved."

"The housing and equipment should be sufficient to permit all essential technical procedures to be properly carried out."

THE DIRECTOR

"The director of an approved clinical laboratory should be a graduate of an acceptable college or university of recognized standing, indicating proper educational attainments. He shall have specialized in clinical pathology, bacteriology, pathology, chemistry or other allied subjects, for at least three years. He must be a man of good standing in his profession."

"The director shall be on full time, or have definite hours of attendance, devoting the major part of his time to the supervision of the laboratory work."

"The director may make diagnoses only when he is a licensed graduate of medicine, has specialized in clinical pathology for at least three years, is reasonably familiar with the manifestation of disease in the patient, and knows laboratory work sufficiently well to direct and supervise reports."

"The director may have assistants, responsible to him. All their reports, bacteriologic, hematologic, biochemical, serologic and pathologic should be made to the director."

RECORDS

"Indexed records of all examinations should be kept. Every specimen submitted to the laboratory should have appended pertinent clinical data."

PUBLICITY

"Publicity of an approved laboratory should be directed only to physicians either through bulletins or through recognized technical journals, and should be limited to statements of fact, as the name, address, telephone number, names and titles of the director, and other responsible personnel, fields of work covered, office hours, directions for sending specimens, etc., and should not contain misleading statements. Only the names of those rendering regular service to the laboratory should appear on letterheads or other form of publicity."

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" * * There should be no dividing of fees or rebating between the laboratory or its director and any physician, corporate body or group. * * *"*

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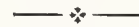
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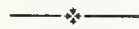
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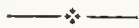
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TRUTH ABOUT MEDICINES

(Continued from Page 41)

Use of Thyroid in Obesity.—The use of thyroid in obesity should always be controlled by a previous basal metabolism test. If this is normal or subnormal, it is safe for a physician to use thyroid. The best practice is to start with small doses of desiccated thyroid (Thyroideum, U. S. P.), gradually increasing. The small dose would be approximately 0.03 gram (one-half grain) twice a day. The physician must keep a sharp lookout for fast pulse, nervousness, or other symptoms resulting from thyroid stimulation. An obese person should not expect reduction by thyroid unless his diet is restricted, and when dietary restrictions are followed thyroid is not needed as frequently. *Jour. A. M. A.*, May 31, 1930, p. 1784.

Selection of Drugs in Hospitals.—The hospital should afford unusual opportunities for enhancing

rational drug therapy. There particularly may products be submitted to critical inspection. As Sollmann so pointedly remarked at the recent Congress on Medical Education, the "evaluation of therapeutic remedies is not usually among the features to which hospital authorities point with just pride of achievement." The hospital drug room, which reflects directly the medicinal requests of the staff, has hardly kept pace with the modernization of other departments of the hospital. As for proprietary medicines, the shelves often remind us of what Irons aptly terms the "chain drug-soda fountain-lunchroom." While in most medical schools the student receives good courses in pharmacology, materia medica and therapeutics and is made familiar with New and Nonofficial Remedies, it is unfortunately true that when the student becomes an intern in a hospital he finds not infrequently that irrational prescriptions are written

(Continued on Next Page)



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TRUTH ABOUT MEDICINES

(Continued from Preceding Page)

by the "chief" of a service, who has not kept apace with the trend of modern drug therapy. All too often he prescribes proprietary drugs when the same drug is obtainable under the pharmacopeial name at a

much lower cost. To mitigate the evils of the prescribing of proprietaries, Irons has suggested the issuance of a hospital manual which shall contain hospital rules and a formulary. The Council on Medical Education, with the coöperation of the Council on Pharmacy and Chemistry, is following up the suggestion and considering the preparation of such a manual.—*Jour. A. M. A.*, May 31, 1930, p. 1764.

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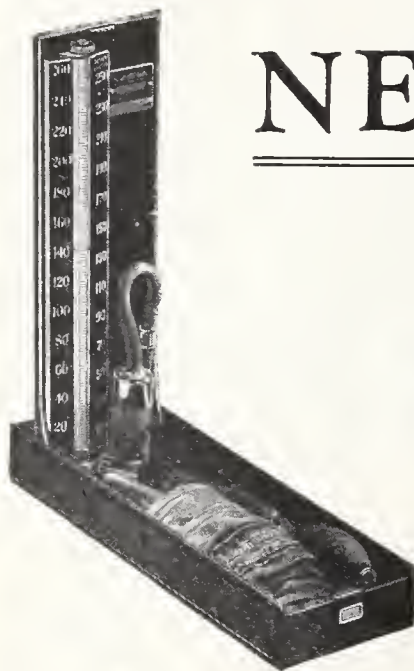
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CONTENTS AND SUBJECT INDEX

SPECIAL ARTICLES

Recent Endocrinology. By H. Lisser, San Francisco.....545

Causes of Failure in the Medical Management of Peptic Ulcer. By Fred H. Kruse, San Francisco.....550
 Discussion by F. A. Speik, Los Angeles; H. Snure, Los Angeles; R. Cummings, Los Angeles.

The Kidney Function in Pemphigus. By Samuel Ayres, Jr., Los Angeles.....556

Intraoral Cancer and Its Treatment. By Albert Soiland and Orville N. Meland, Los Angeles.....559
 Discussion by H. J. Ullmann, Santa Barbara; Laurence Taussig, San Francisco; Lyell C. Kinney, San Diego.

Radical Treatment of Cancer of the Bladder. By R. C. Coffey, Portland.....562

Roentgen Diagnosis of Pulmonary Tuberculosis in Infants and Children. By Rolla G. Karshner, Los Angeles.....565
 Discussion by W. H. Sargent, Oakland; H. E. Stafford, Oakland; L. B. Dickey, San Francisco

Colon Resection. By Ernst Gehrels, San Francisco.....568
 Discussion by Robert C. Coffey, Portland, Oregon; Foster K. Collins, Los Angeles.

Diverticula of the Urinary Bladder in Women. By J. J. Crane, Los Angeles.....572
 Discussion by Herbert A. Rosenkranz, Los Angeles; George F. Schenck, Los Angeles; J. C. Negley, Los Angeles.

Anatomical Variations of Accessory Nasal Sinuses. By Edwin S. Budge, Los Angeles.....576
 Discussion by C. L. Callander, San Francisco.

Comparative Blood Pressures in the Two Arms. By W. E. Kay and K. D. Gardner, San Francisco.....578

Advanced Tuberculosis. By Charles E. Atkinson, Banning.....580
 Discussion by W. H. Bucher, Olive View; R. C. Matson, Portland; P. H. Pierson, San Francisco.

Acute Pulmonary Edema During Pregnancy and Labor. By Harry K. Bonn, Los Angeles.....584
 Discussion by W. Clifford McKee, Los Angeles; Henry A. Stephenson, San Francisco; Walter B. Hill, Long Beach.

Esthetic Plastic Surgery. By H. O. Bames, Los Angeles.....588
 Discussion by George Warren Pierce, San Francisco; Howard L. Updegraff, Hollywood; William S. Kiskadden, Los Angeles.

Infections of the Ethmoid Labyrinth. By Ferris Arnold, Long Beach.....591
 Discussion by F. H. Linthicum, Los Angeles; Isaac H. Jones, Los Angeles.

Poliomyelitis. By Beatrice Howitt, M. A., San Francisco.....596

Acute Anterior Poliomyelitis—Epidemic in California. By W. M. Dickie, Sacramento.....601

Sixteenth Century German Medicine—The Lure of Medical History. (Part II.) By S. L. Millard Rosenberg, Ph.D., Los Angeles.....602

CLINICAL NOTES AND CASE REPORTS:

A Large Pork Bone in the Bronchus. By H. J. Hara, Los Angeles.....606

Rudimentary Gall Bladder and Congenitally Absent Common Duct. By J. M. Frawley, Fresno and Stanley H. Mentzer, San Francisco.....607

Agranulocytic Leukopenia in Relation to Acute Febrile Upper Respiratory Infection. By E. R. Lewis, Los Angeles.....607

A New Knee Bandage. By Mast Wolfson, San Francisco.....608

BEDSIDE MEDICINE:

X-Ray Burns.....609
 Discussion by John M. Rehfish, San Francisco; Samuel Ayres, Jr., and Nelson P. Anderson, Los Angeles; George Warren Pierce and Gerald B. O'Connor, San Francisco.

EDITORIALS:

Medico-Economic Problems.....611
 A Proposed Chiropractic Initiative.....612
 Summer Days Are Here Again—The Value of a Vacation Outing Meeting.....613
 The Advertising Patrons of California and Western Medicine—Why They Deserve Your Support.....614

MEDICINE TODAY:

Pellagra. By F. H. Stibbens, Oakland.....615
 Foreign Bodies in the Cornea. By Samuel A. Durr, San Diego.....615
 Thallium Acetate. By Ernest K. Stratton, San Francisco.....616
 The Innervation of the Kidney. By Frank Hinman, San Francisco.....617

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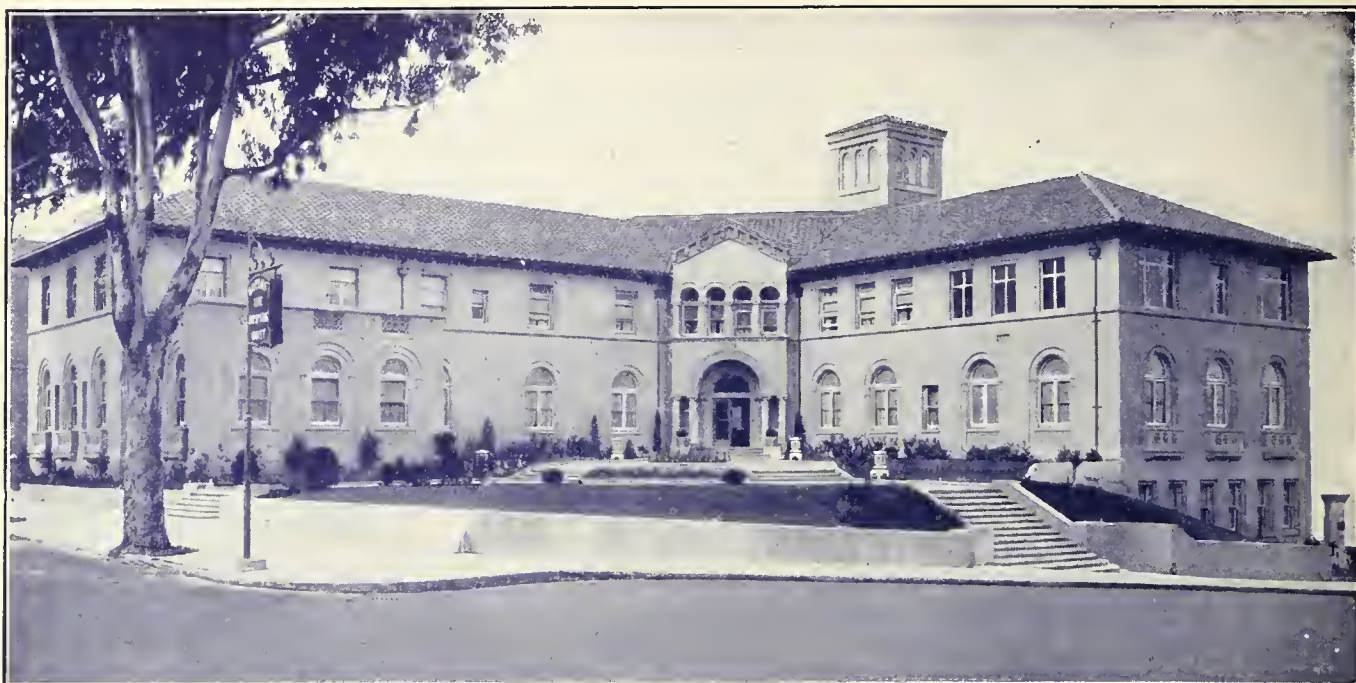
California Medical Association.....618
 Woman's Auxiliary.....619
 Utah State Medical Association.....620

MISCELLANY:

News.....622
 Correspondence.....622
 Twenty-Five Years Ago.....623
 Department of Public Health.....623
 Directory of Officers, Sections, County Units, and Woman's Auxiliary of the California Medical Association.....
Adv. page 2

ADVERTISEMENTS—INDEX:

.....Adv. page 8



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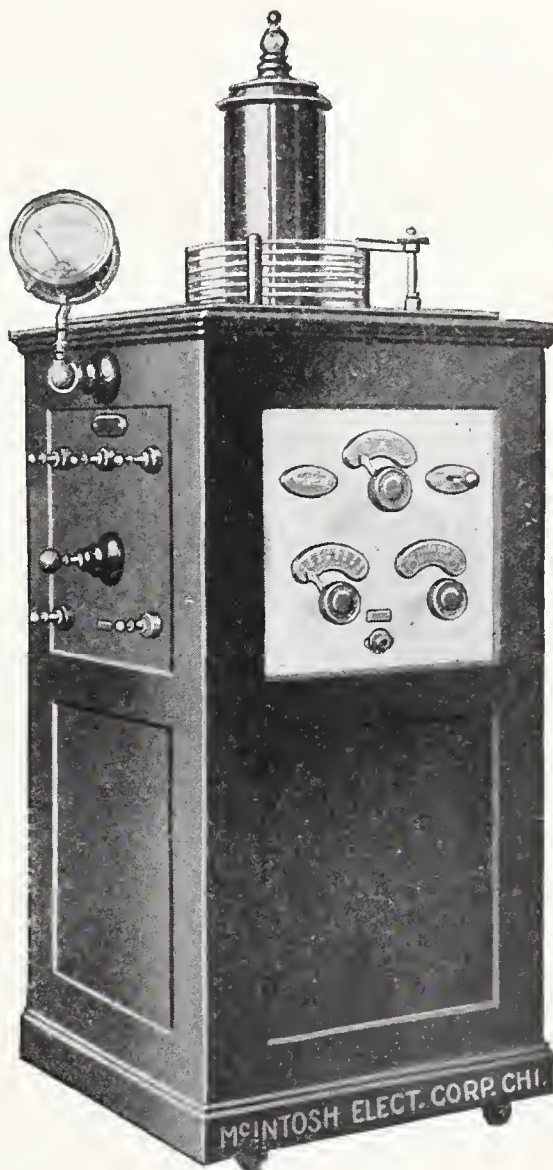
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WILLIAM L. RICH, Salt Lake City.....President-Elect	Place of next meeting.....Salt Lake City, September 9-11, 1930
M. M. CRITCHLOW, Salt Lake City.....Secretary	

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The institutions here listed have announcements in this issue of CALIFORNIA AND WESTERN MEDICINE

ALEXANDER SANITARIUM Nervous and Mild Mental Diseases Belmont, Calif.	FRANKLIN HOSPITAL Limited General Hospital Fourteenth and Noe Streets, San Francisco	SANTA BARBARA CLINIC 1421 State Street, Santa Barbara
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CALIFORNIA SANITARIUM For the Treatment of Tuberculosis Belmont, San Mateo County, Calif.	JOSLIN'S SANATORIUM Nervous and Mental Lincoln, Calif.	SAINT FRANCIS HOSPITAL Limited General Hospital Bush and Hyde Streets, San Francisco
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	Page		Page		Page
Alexander Sanitarium	17	Guth, C. Rodolph, Clinical Laboratory	10	Park Sanitarium	24
Aloe Co., A. S.	41	Guardian Life Insurance Co.	20	Parke, Davis & Co.	7
Alum Rock Sanatorium	19	Hampton, Geo. L.	20	Physiotherapy & X-Ray Courses	
American Surgical Sales Co., Ltd., The	33	Hexol, Inc.	52	Children's Hospital	34
Approved Clinical Laboratories	48	Hill-Young School of Corrective Speech	24	Podesta and Baldocchi	43
Arlington Chemical Co., The	16	Hittenberger Co., C. H.	10	Pottenger Sanatorium	53
Banning Sanatorium	44	Hoffmann-La Roche, Inc.	13	Purity Spring Water Co.	15
Barry Co., The James H.	50	Holland-Rantos Co., Inc.	24		
Bausch & Lomb Optical Co.	38	Hospitals and Sanatoriums	6	Rainier Brewing Co.	36
Benjamin & Rackerby	33	Hynson, Westcott & Dunning, Inc.	36	Riggs Optical Company	31
Benjamin, M. J.	37	Jacobs, Louis Clive	28	Saint Francis Hospital	14
Bittleston Collection Agency, Inc.	54	Johnston-Wickett Clinic	46	Santa Barbara Clinic, The	52
Broemmel's Prescription Pharmacies	3	Joslin's Sanatorium	31	Scherer Co., R. L.	27
Brown Press	39	Kelley-Koett Mfg. Co., Inc., The	15	Scripps Metabolic Clinic and Memorial Hospital	18
Bush Electric Corporation	1	Keniston-Root Corporation	41	Sharp & Dohme	5
		Knox Gelatine Laboratories	25	Sharp & Smith	34
California Lima Bean Growers' Association	37	Laboratory Products Co.	3 Cover	Shasta Water Co., The	22
California Optical Co.	49	Las Encinas Sanitarium	12	Shumate's Prescription Pharmacies	24
California Sanatorium	17	Lederle Laboratories, Inc.	23	Soiland, Albert (Radiological Clinic)	30
Calso Water Co.	41	Lengfeld's Pharmacy	24	Southern Sierras Sanatorium	22
Camp & Co., S. H.	30	Lilly & Company, Eli	32	Squibb & Sons, E. R.	26
Canyon Sanatorium	18	Lister Bros., Inc.	11	Stacey, J. W., Medical Books	11
Certified Laboratory Products	38	Livermore Sanitarium	29	St. Joseph's Hospital	52
Charles B. Towns Hospital	39	Maltbie Chemical Co., The	28	St. Luke's Hospital	23
Children's Hospital	51	Mead Johnson & Co.	21	St. Mary's Hospital	54
Clark-Gandion Co., Inc.	14	Medical Protective Co.	45	Storm Binder and Abdominal Supporter	40
Classified Advertisements	10	Medico-Dental Finance Corp.	40	Sugarman Clinical Laboratory	28
Colfax School for the Tuberculous	55	Merck & Co., Inc.	56	Sutter Hospital, Sacramento	14
Compton Sanitarium and Las Campanas Hospital	9	Merrell-Soule Co., Inc.	42		
Cutter Laboratory	4 Cover	Monrovia Clinic	43	Towns Hospital, Charles B.	39
Dairy Delivery Co.	35			Trainer-Parsons Optical Co.	27
Dante Sanatorium	4 Cover	National Ice and Cold Storage Company	29	Twin Pines	38
Dewar & Hare Electric Co.	46	New York Polyclinic Medical School and Hospital	9		
Doctors' Business Bureau	19	New York Post Graduate Medical School and Hospital	39	Union Square Building	11
Dry Milk Co., The	47	Nichols Nasal Syphon	43	United States Fidelity & Guaranty Company	49
Four Fifty Sutter	35	Nonspi Company	29		
Franklin Hospital	43	Oaks Sanitarium	9	Vita-Fruit Products, Inc.	35
Frazier, Delmar J.	12	Officers of the California Medical Association	2-4	Vitalait Laboratory	12
Furcott, Hazel E.	24	Officers of Miscellaneous Medical Associations	6		
Golden State Milk Products Co.	30			Wallace, Sidney J.	53
Greens' Eye Hospital	2 Cover			Walters Surgical Company	51
Gunn, Herbert, Stool Examination Laboratory	24			Wanted—Medical Doctor	20
				Wedekind Co., Frank F.	39
				Wilson Laboratories	20

CALIFORNIA AND WESTERN MEDICINE, the Journal of our Association, in its present form, is made possible in part because of the generous coöperation of firms who believe that its pages can successfully carry a message concerning their products to a desirable group of present and future patrons.

The five thousand and more readers of CALIFORNIA AND WESTERN MEDICINE often have occasion to purchase articles advertised in this publication.

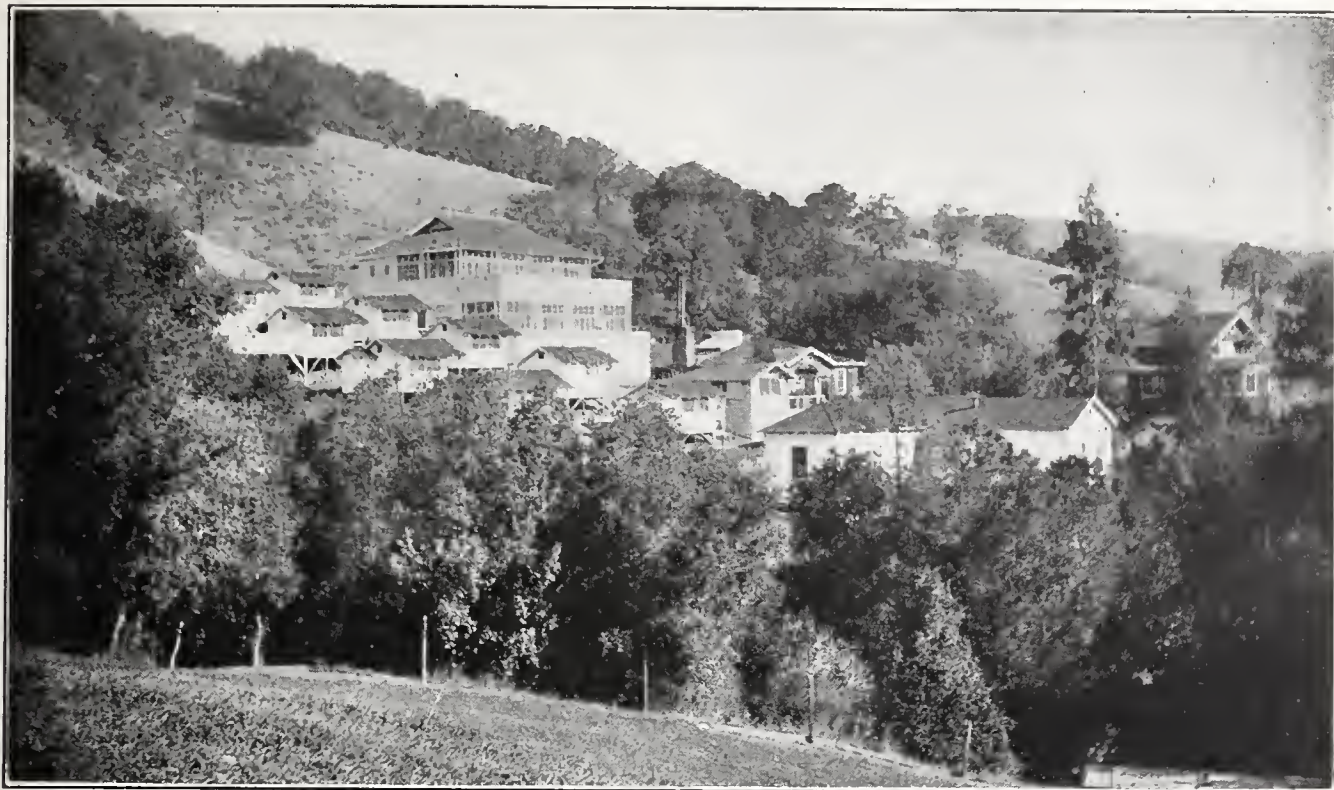
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U. C. Foundation Purchases Blood.—Through the State Department of Public Health the University of California Hooper Foundation for Medical Research has just announced that it is prepared to buy blood from individuals who have recovered from attacks of acute anterior poliomyelitis or infantile paralysis, at the rate of \$10 per hundred cubic centimeters.

Dr. Karl F. Meyer, director of Hooper Foundation, explains that this blood is to be used in making serum for the treatment of future cases of infantile paralysis. The use of such convalescent serum has been shown to be most advantageous in the prevention of permanent damage in children and others afflicted with the disease, provided that it is administered within forty-eight hours after first symptoms appear.

It is for the purpose of maintaining a constant supply of convalescent serum to be used in emergencies throughout the state that Hooper Foundation is seeking to buy the blood of patients who have recovered from the disease. The blood of such patients has developed certain properties which will aid other patients in overcoming the disastrous effects of the disease.

To support this work a friend of the University established a perpetual income of \$5000 a year for Hooper Foundation, in December, 1927.

New Building for U. C. Extension Is Begun in Oakland.—Indicating the remarkable growth of the University of California Extension Division and Adult education throughout the state, a centralized building to house all classes given in Oakland by the Division will be rushed to completion for the start of the fall period.

The remarkable growth and interest in adult education has made possible the building of the new Extension quarters on Franklin Street between Seventeenth and Eighteenth Streets. Since the establishment of classroom work in Oakland eleven years ago, when a circulating library provided the first office, enrollments in adult courses have steadily increased. In anticipation of still larger enrollments this fall more than 100 classes in a wide variety of subjects will be inaugurated in the new quarters, it is announced.

BOOK REVIEWS

List of Books Received

BOOKS RECEIVED

The Beginnings—Egypt and Assyria. By Warren R. Dawson, F. R. S. E., Fellow of the Royal Society of Medicine of the Society of Antiquaries of Scotland and of the Royal Anthropological Institute of Great Britain and Ireland. Cloth. Pp. 86. Price, \$1.50. New York: Paul B. Hoeber, Inc., 1930.

Manual of the Diseases of the Eye. For students and general practitioners. By Charles H. May, M. D., Director and Visiting Surgeon, Eye Service, Bellevue Hospital, New York, 1916 to 1926. Thirteenth edition, revised. Cloth. Pp. 461, with 374 original illustrations, including 23 plates with 73 colored figures. Price, \$4 net. New York: William Wood and Company, 1930.

Physical Diagnosis. By Richard C. Cabot, M. D., Professor of Clinical Medicine in Harvard University. Tenth edition. Revised and enlarged. Cloth. Pp. 529, with six plates and 279 figures in the text. Price, \$5 net. New York: William Wood and Company, 1930.

Report on Fifth International Congress of Military Medicine and Pharmacy. London, England, May, 1929. By Commander William Seaman Bainbridge, M. C. F., United States Naval Reserve, Member of Permanent Committee, Delegate from the United States. Cloth. Pp. 154. Menasha, Wisconsin: George Banta Publishing Co.

Medical and Surgical Year-Book. Physicians Hospital of Plattsburgh. Comprising Wednesday afternoon invitation lectures, papers of the Cardiac Round Table, the First Beaumont Lecture, collected papers by the staff. Cloth. Pp. 322, illustrated. Plattsburgh: The William H. Miner Foundation, 1930.

BOOK REVIEWS

Venereal Disease, Its Prevention, Symptoms and Treatment. By Hugh Wansey Bayly. Fourth (American) edition. Pp. 242. Illustrated. Philadelphia: F. A. Davis Company, 1930. Price \$3.50.

In this monograph, the author shows a thorough knowledge of the venereal diseases. This subject, upon which volumes have been written, is dealt with briefly but nevertheless completely and thoroughly in a few over two hundred pages.

Of particular interest, I believe, is the discussion of the Wassermann reaction with a sensible interpretation of the same bringing out the fact that a positive test without clinical manifestations is invariably taken with too much faith.

The standard of cure of gonorrhea outlined by the author is complete in detail and well worth copying.

I am sure that many of us might not agree with Bayly on the great value he places on gonococcal vaccine. On another point, namely, when a person under treatment for syphilis may be permitted to marry, he is too optimistic.

Nevertheless, the author shows evidence of vast experience in handling of venereal disease and the book can be classed as being one of the best written on the subject. M. V.

The Doctor Discusses Your Questions. By Mark Gerstle, Jr. With a foreword by Langley Porter. Pp. 91. San Francisco: J. W. Stacey, Inc. 1929. Price \$1.50.

An entertaining and instructive book for the layman. It discusses frankly and with dignity many phases of biology and medicine where the public mind is still influenced largely by superstitions—genetics, infection and immunity, nutrition, drugs and treatment, cancer, sex, phobias, etc. The book can be carried in the pocket or is suitable for the doctor's waiting room. E. S. K.

Cancer of the Breast. By William Crawford White. Pp. 221. Illustrated. New York and London: Harper and Brothers, publishers. 1930. Price \$3.

A brief reference—almost outline in form—of the anatomy, pathology, surgery and radiotherapy of breast cancer. The book contains a large amount of information in small volume and is, in the main, sound in principle. It would have been much improved by more profuse illustration and especially by a better discussion of differential gross pathology as encountered at exploration of breast tumors. A. R. K.

Recent Advances in Medicine—Clinical, Laboratory, Therapeutic. By G. E. Beaumont and E. C. Dodds. Fifth edition. Pp. 442. Illustrated. Philadelphia: P. Blakiston's Son & Co., Inc. 1930. Price \$3.50.

This small volume brings to date its predecessor of two years previous and continues to fill adequately its self-limited but useful function. Departing somewhat

(Continued on Next Page)



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BOOK REVIEWS

(Continued from Preceding Page)

from the implication of its title, its contents consist essentially of a complete account of those and only those special laboratory investigations which are now accepted universally as part of the routine study of a patient in a modern scientific medical center. This includes methods (1) most importantly chemical and physical and some microscopical; (2) examinations by special instruments as electrocardiograph or basal metabolism determinations; (3) procedures involving standardized or quantitatively applied clinical phases, as cholecystography, lipiodol injections, hydrodynamic measurements in spinal fluid; (4) some clinical tests as Schick test and skin allergy tests. Concise and exact details are given for performing each test, especially the newer methods.

The grouping and discussion of the data obtained by these methods is most satisfactorily practical and constitutes the particularly valuable feature of the book. For each bodily system is given the modern working theory of its physiology and pathology, the presenting symptom of laboratory finding when it is diseased and, grouped together, all the tests which measure its pathology or may guide in treatment. Especially clearly told "just what help may reasonably be expected to accrue from them." Considerable space is given to a few recent methods of treatment which are closely laboratory-controlled, as insulin in diabetes and liver treatment in pernicious anemias.

For the internist specialist, the subject matter is presumably daily routine. The general practitioner, the physician less closely in touch with a medical center, the surgeon and specialist may with this volume readily orientate himself in the constantly changing modern approach to a medical diagnostic problem. R. R.

Otosclerosis. A resumé of the literature to July, 1928, compiled under the direction of the Committee on Otosclerosis, American Otological Society, Norval H. Pierce, M. D.; James F. McKernon, M. D.; Eugene A. Crockett, M. D.; J. Gordon Wilson, M. D.; Arthur B. Duel, M. D., editor. Pp. 684. New York: P. B. Hoeber, Inc., 1929.

The two volumes on otosclerosis, just published by the American Otological Society, are certainly masterpieces on this subject.

The work is a complete resumé of all that has ever been written on otosclerosis and deals with this interesting subject in all its phases.

The abstracting is so well done and the volumes make such interesting reading that one finds difficulty in laying the book aside when once begun.

The two volumes are most exhaustive and as a reference are invaluable to the otologist. R. E. A.

New and Nonofficial Remedies, 1930. Cloth. Price \$1.50. Pp. 481; xlviii. Chicago: American Medical Association.

"New and Nonofficial Remedies is a book in which are listed and described the articles that stand accepted by the Council on Pharmacy and Chemistry of the American Medical Association on January 1 of the year of publication. The descriptions of accepted articles are based in part on investigations made by, or under the direction of,

the Council, and in part on evidence or information supplied by the manufacturer or his agents. Statements made by those commercially interested are examined critically and admitted only when they are supported by other evidence or when they conform to known facts."

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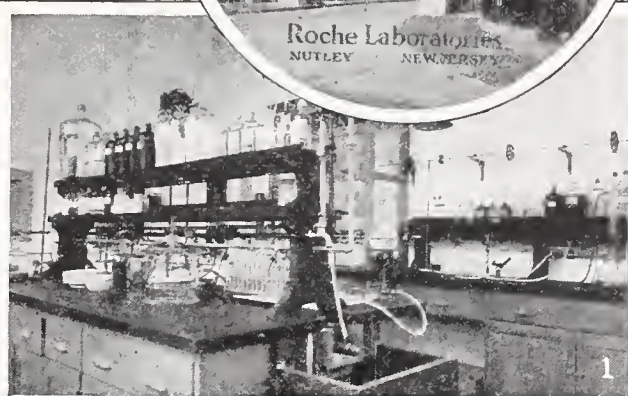
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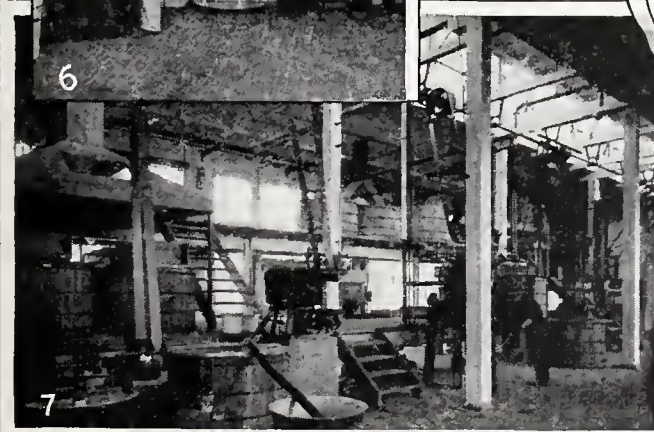
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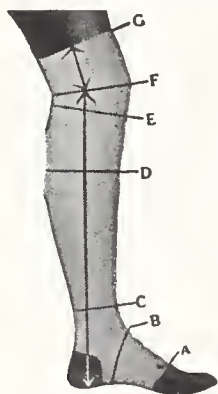
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BOOK REVIEWS

(Continued from Page 12)

articles, and a bibliographical index to proprietary and unofficial articles not included in New and Nonofficial Remedies furnish an easy method for location and classification of any remedy whose value is under consideration.

Among the new preparations, descriptions of which appear for the first time in this edition, are: Bismarsen, which is sulpharsphenamin bismuth; Dial-Ciba, which is diacetylbarbituric acid; Calcium Gluconate-Sandoz, a more palatable and less irritating preparation of calcium; Atoquinol-Ciba, a cinchophen derivative; Pitocin and Pitressin, solutions respectively of the oxytocic and pressor principles of the pituitary gland; Viosterol (the Council name for irradiated ergosterol) in the forms of Viosterol in Oil 100 D, which is irradiated ergosterol dissolved in vegetable oil, and cod liver oil with Viosterol 5 D, which is cod liver oil with its vitamin D potency enhanced by addition of viosterol.

Research and Medical Progress, and Other Addresses. By J. Shelton Horsley. Pp. 208. Illustrated. St. Louis: The C. V. Mosby Company, 1929. Price \$2.

This small volume of admirable addresses is dedicated to the ex-interns of St. Elizabeth's Hospital, Richmond, Virginia, where the author has devoted so much of his time to his surgical patients, to the training of young men in surgery, and to surgical research. One is impressed by the author's wide knowledge of the newer investigations in the fundamental sciences and their application to surgical problems. Here and there occurs a repetition of a paragraph or two from another chapter which is not annoying and serves to emphasize certain important researches. It is a book enjoyable both to the physician and surgeon and is an excellent gift for the intern and recent graduate.

F. L. R.

The Bacteriophage and Its Clinical Applications. By F. D'Herelle. Translated by George H. Smith. Pp. 254. Springfield: Charles C. Thomas. 1930. Price \$4.

The text is the material used by D'Herelle in his 1928 Lane Lectures. The phenomena of bacteriophage—its physical characteristic; its non-lytic influence on bacterial races; its rôle as major immunizing agent; are comprehensively portrayed—as seen through D'Herelle's eyes.

One finds it difficult to resist the controversial tone of the book and be uninfluenced by it, nor is such criticism intended to belittle this absorbing study, but controversy and seeming intolerance of other viewpoints rob it of dignity. Even our well-founded theories of cellu-

lar structure and of immunity we feel instinctively to defend rather than precipitously discard for so novel and too unsustained a hypothesis. Nor can we at once concede to phage-bacterium "symbiosis" all the biologic variations noted of micro-organisms.

Thus deleted, the book presents this subject completely and clearly. E. A. V.

Annual Reprint of the Reports of the Council on Pharmacy and Chemistry of the American Medical Association for 1929. With comments that have appeared in the Journal. Cloth. Price \$1. Pp. 81. Chicago: American Medical Association, 1930.

"This volume—the Annual Reprint of the Reports of the Council on Pharmacy and Chemistry of the American Medical Association—contains the reports of the Council that have been adopted and authorized for publication during 1929. It includes reports of the Council previously published in the Journal, along with such editorial comments as have accompanied them. In addition, the volume contains reports of the Council which, because of their lesser importance, were not published in the Journal, and which as a matter of record are included here."

TRUTH ABOUT MEDICINES New and Nonofficial Remedies

(Abstracts from reports of Council on Pharmacy and Chemistry, A. M. A.)

In addition to the articles previously enumerated, the following have been accepted.

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Maltbie Chemical Co.—Ephedrin Nasal Jelly (Maltbie).

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H. A. Metz Laboratories, Inc.—Elixir of Pyramidon; Pyramidon Tablets, 1½ grains.

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Parke, Davis & Co.—Ephedrin Hydrochloride (P. D. & Co.); Capsules Ephedrin Hydrochloride, (P. D. & Co.), ¾ grain; Capsules Ephedrin Hydrochloride (P. D. & Co.), ¾ grain; Thio (Bismol), Ampoules of Thio (Bismol).

Pitman-Moore Co.—Siomine; Siomine Capsules, ½ grain; Siomine Capsules, 1 grain; Siomine Capsules, 2 grains; Siomine Capsules, 5 grains.

G. D. Searle & Co.—Ampules Mercurochrome (H. W. & D.), 1 per cent, 10 cubic centimeters; Ampules Mercurochrome (H. W. & D.), 1 per cent, 20 cubic centimeters.

Nonproprietary Article.—Alphanaphthol.

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(Continued on Page 18)

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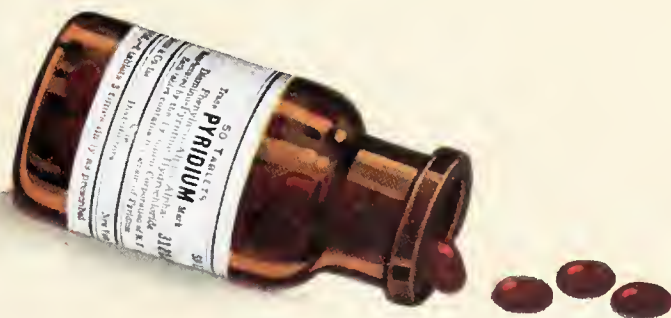
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TRUTH ABOUT MEDICINES

(Continued from Page 15)

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Merrell-Soule Whole Lactic Acid Milk Powder (Merrell-Soule Co., Inc., New York).—It is made from fresh whole milk. It contains fat, 28 per cent; protein, 26.5 per cent; lactose, 32.5 per cent; mineral matter, 6 per cent; total acidity, 5 per cent; free lactic acid, 4.25 per cent; moisture, 2.25 per cent. It is prepared from pure whole milk inoculated with a culture of *Streptococcus lactis*. This product is claimed to have the value of freshly prepared lactic acid milk.

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Eka Salt and the Salt Free Diet.—Eka salt (claimed to contain sodium malate as its essential constituent)

(Continued on Page 23)



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ALQUA FOR ACIDOSIS



"RpH (alkaline reserve) values of 8.4 to 8.55 are normal for adults. It has been Marriott's experience that if the RpH does not fall below 7.9, the acidosis may be successfully combated by administration of ALKALIES by mouth."

ACIDOSIS—An intoxication with Acid toxins and a corresponding lessening of the Alkaline Reserve (RpH), is present in nearly all acute and chronic diseases.

ALQUA WATER—contains all the ALKALINE SALTS necessary to neutralize ACIDOSIS and maintain the normal RpH.

ALQUA WATER—In addition to the virtues of ordinary alkaline waters, Alqua has the distinct advantage of being prepared from pure, glacier water from Mount Shasta.

To insure a palatable water of uniform alkalizing power an absolutely pure water supply is essential. Glacier water is the purest water found in nature.

Have your patient order ALQUA by the case. (12 full quarts)
It is more economical.

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For Tuberculosis and Allied Affections

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Climate Favorable Throughout The Year

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Simmons' Beautyrest mattresses throughout.
Radio connection in each apartment.

Tempting, tasteful foods prepared by a woman cook.
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A spot of beauty in an atmosphere of contentment.

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A REPUTATION FOR SERVICE AND SATISFACTION

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Medical Director

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A limited general hospital of 200 beds admitting all classes of patients except those suffering from communicable or mental diseases. Organized in 1871, and operated by a Board of Directors, under the direct supervision of the Executive Committee of the Medical Staff.

TRUTH ABOUT MEDICINES

(Continued from Page 19)

is offered as a means of giving the same flavor as common table salt without making it necessary for the body to deal with the ten or fifteen grams of sodium chloride that would ordinarily be taken. Since no one knows whether the sodium or the chloride is responsible for any of the untoward effects attributed to sodium chloride, it would not be proper to include Eka salt in a diet that is intended to be strictly salt free.—(*Jour. A. M. A.*, June 7, 1930, p. 1859.)

Methods of Flavoring Bile Drainage.—Proprietary mixtures containing phenolphthalein, acid sodium oleate, salicylic acid and menthol had much vogue some years ago. This was an attempt to combine the experimentally demonstrated stimulants to bile secretion (salicylic acid and menthol) with the bile expelling effect of fatty acid (quantity probably entirely inadequate) and the laxative action of phenolphthalein. The Karlsbad treatment, consisting of the ingestion of hot alkaline laxative mineral waters, is another way of aiming at the same result, which has centuries of favorable experience in its favor. Either the natural or the artificial Karlsbad salt (N. F.) may be taken by the teaspoonful to a tumblerful of hot water half an hour before the larger meals.—(*Jour. A. M. A.*, June 7, 1930, p. 1861).

The Sale of Sunshine Lamps to the Public.—The Council on Physical Therapy has taken the stand that a sunshine lamp sold directly to the public should be so constructed that the radiant energy emitted shall not differ essentially from sunlight. Furthermore, the advertising and descriptive matter pertaining to such lamps should contain no curative claims nor mention of specific diseases. The Council believes that the advertising should be more conservative: it is not convinced that human beings in health require the great amount of ultraviolet energy one is lead to be—
(Continued on Page 27)

HAY FEVER

*has been prevented in
thousands of cases with*

Pollen Antigen

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Prophylactic Treatment

may be commenced as late as two weeks before the date of the expected attack. Fifteen graduated doses of an appropriate Antigen are required. Patients usually suffer little inconvenience from the injections, and many are completely protected from Hay Fever attacks.

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Open to any physician eligible to the American Medical Association. Patients referred by physicians remain under their care if desired.

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Send on Request

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DIET QUESTIONS have GELATINE ANSWERS

APPETIZING VARIETY
IN THE DIABETIC DIET

For Example—

JELLIED CHICKEN IN CREAM
(Six Servings)

	Grams	Prot.	Fat	Carb.	Cal.
1 tablespoonful Knox Sparkling Gelatine . .	7	6	....	....	....
¾ cup cold chicken broth or water . . . . .	....	....	....	....	....
1¼ cups boiling chicken broth, fat free . . . . .	....	....	....	....	....
½ teaspoon salt . . . . .	....	....	....	....	....
Pinch pepper . . . . .	....	....	....	....	....
1 cup cooked chicken, cubed	125	24	20	....	....
¼ cup cream, whipped .	55	1	22	1.5	....
Total	211	44	1.5	526	
One serving	35	7	....	88	

Soak gelatine in cold liquid for five minutes and dissolve in hot broth. Season with salt and pepper and chill until nearly set. Fold in chicken and whipped cream. Turn into wet molds and chill until firm. Serve on lettuce or garnish with parsley and strip of pimento.

Every physician knows the difficulty of diet control in diabetes.

The solution is quite simple.

With *Knox Sparkling Gelatine*, the taste dissatisfaction with the monotony of the diabetic diet may be almost entirely dispelled, without disturbing the purpose or the balance of the diet in the slightest degree.

Where small quantities of vegetables, meat or fish are necessary, satisfying bulk may be supplied with Knox Gelatine, which combines perfectly with these essential foods, making them more attractive to the eye and continuously delightful to the taste.

With *Knox Gelatine*, a different dish may be served every day from the basic foods of the diabetic diet.

In prescribing gelatine it is essential to specify KNOX, because of its established purity and absolute freedom from sugar, and also to end any confusion that may exist in the public mind as to what is meant by "gelatine".

If, for instance, a ready-sweetened, flavored and colored brand of gelatine is used, the patient gets about 87% sugar, which is, of itself, sufficient to defeat the purpose of the diabetic diet.

Knox Gelatine is just pure gelatine, containing no sweetening, no flavoring, no coloring, no acid.

We would like to send every physician a treatise on "Diet in the Treatment of Diabetes" by Lulu G. Graves, Honorary President of the American Dietetic Association. This treatise presents many new ideas and recipes in the preparation of beneficial diabetic diets. It is of such character that it may be placed in the hands of any patient with the assurance that it will act as a safe diet control, and at the same time make the patient as happy with his food as though he were not on a diet. This treatise will be sent in any quantity, to supply the diabetic patients of any physician who will mail this coupon.

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Please send me, without obligation or expense, the booklets which I have marked. Also register my name for future reports on clinical gelatine tests as they are issued.

- ☐ Varying the Monotony of Liquid and Soft Diets.
- ☐ Recipes for Anemia.
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- ☐ Value of Gelatine in Infant and Child Feeding.

Name

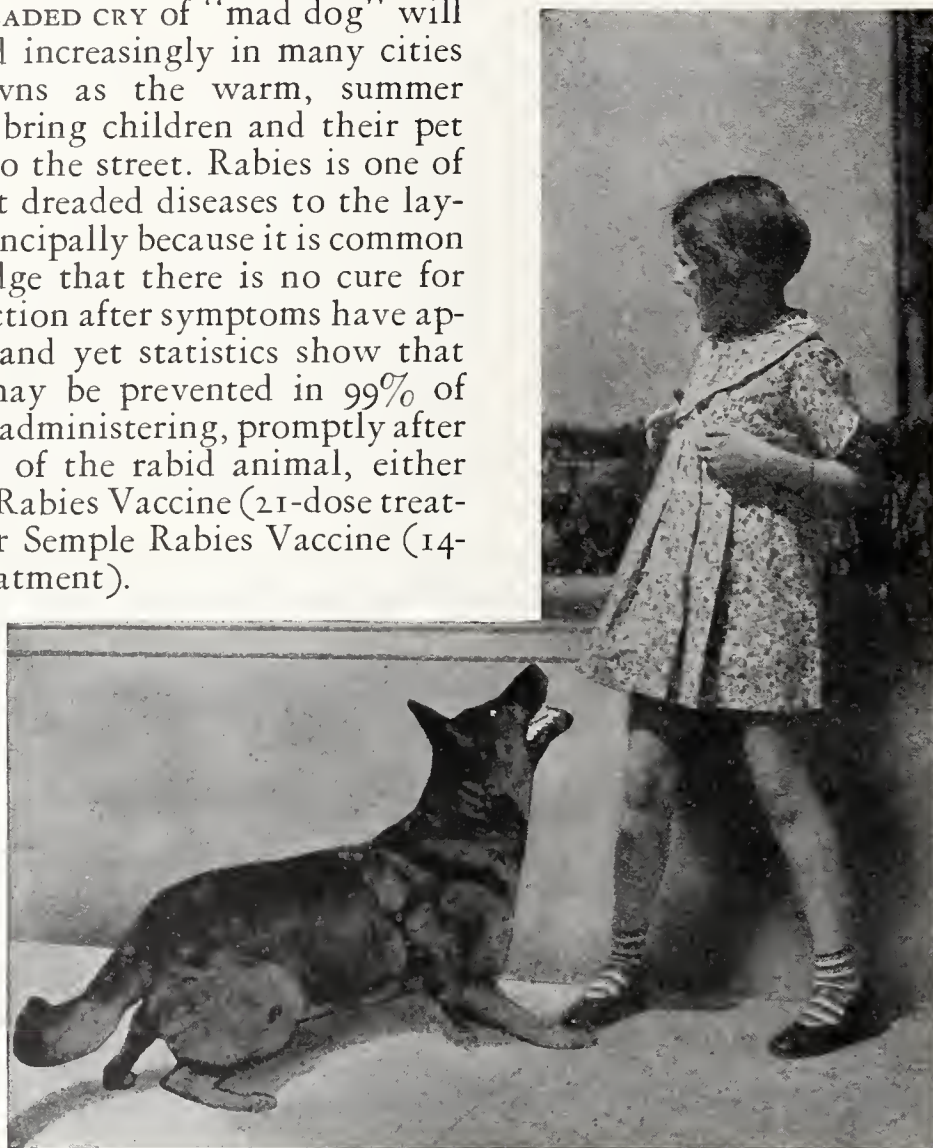
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City

State

One savage lunge by a maddened dog . . . *then rabies starts its dreaded course*

THE DREADED CRY of "mad dog" will be heard increasingly in many cities and towns as the warm, summer months bring children and their pet dogs into the street. Rabies is one of the most dreaded diseases to the layman, principally because it is common knowledge that there is no cure for the infection after symptoms have appeared, and yet statistics show that rabies may be prevented in 99% of cases by administering, promptly after the bite of the rabid animal, either Pasteur Rabies Vaccine (21-dose treatment) or Semple Rabies Vaccine (14-dose treatment).



RABIES VACCINE SQUIBB (Semple Method) consists of 14 doses of equal strength, and ready to use without mixing. It is more convenient and less expensive than the older methods of treatment. It can be kept in stock by the pharmacist and can be adminis-

tered at the patient's home or physician's office.

PASTEUR RABIES VACCINE SQUIBB consists of 21 graduated doses in individual syringes, for subcutaneous injection, of emulsified spinal cord of a rabbit inoculated with an attenuated form of rabies.

EITHER TREATMENT ENSURES PRACTICALLY COMPLETE PROTECTION

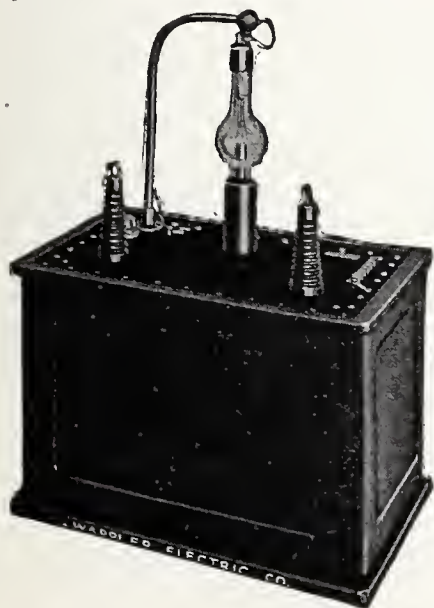
Every physician should take precaution to see that these products are available in the drug store he patronizes.

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ONE of the major considerations in the selection of an X-Ray machine is the service required by it to insure continued operation without any delay for repairs, adjustments or overhauling.



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Wappler sales and service agents throughout the country have commented on how the MONEX has almost entirely eliminated these costly delays. We ourselves have noted how, with the elimination of all moving parts on the MONEX service calls have diminished.

Let us tell you more; how it operates in silence, is economical in space as well as in operation, and of its ample capacity for ALL radiographic and fluoroscopic requirements. Send for Bulletin No. 107.

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SAN DIEGO

TRUTH ABOUT MEDICINES

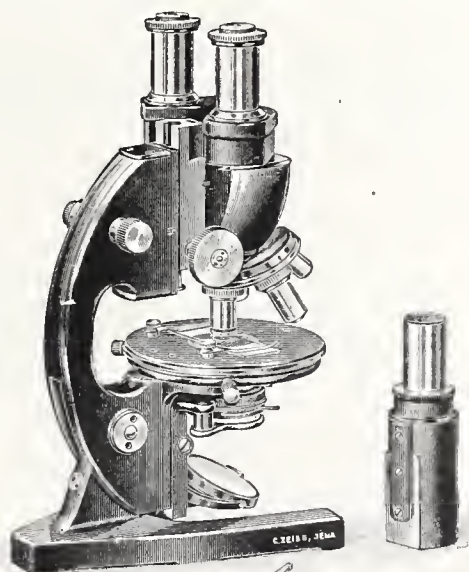
(Continued from Page 23)

lieve is the case from the advertising pertaining to some of the so-called sunlamps sold to the public.—*Jour. A. M. A.*, June 14, 1930, p. 1918).

A Statement to Manufacturers of Physical Therapy Equipment.—It has come to the attention of the Council on Physical Therapy that certain manufacturers make unscientific and unwarranted claims in advertisements that appear in publications other than those of the American Medical Association while advertising the same equipment conservatively in publications of the Association. The Council calls the attention of manufacturers to the fact that all advertising must conform to the requirements of the Council if the apparatus is to remain acceptable to the Council.—(*Jour. A. M. A.*, June 14, 1930, p. 1918.)

Digestive Enzymes for Oral Administration Omitted from N. N. R.—The Council on Pharmacy and Chemistry reports that in consideration of the replies to a questionnaire sent out in 1925 it was decided at that time to continue the acceptance of gastric ferment preparations, including those intended for internal administration, to await confirmatory evidence in favor of their use. No acceptable evidence showing the value of gastric enzymes when administered orally having become available, the Council has omitted all digestive enzyme preparations save those recommended for use outside the body for the digestion of food previous to administration and locally for the softening of dead tissues or the solution of false membranes. The following are the products which have been omitted: Elixir of Enzymes (Armour & Co.); Essence of Pepsine-Fairchild, Gastron, Holadin and Diazyme Glycerole (Fairchild Bros. & Foster); and Panase (Frederick Stearns & Co.).—(*Jour. A. M. A.*, June 14, 1930, p. 1919.)

(Continued on Next Page)



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Represent the finest possible craftsmanship, optically and mechanically, in the microscope field.

Priced from \$128.00 up. Terms if desired.

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BELIEVING THAT THERE IS NOTHING QUITE SO CONVINCING AS AN ACTUAL TEST WE
WOULD LIKE TO SEND EVERY INTERESTED PHYSICIAN A COMPLIMENTARY PACKAGE
AS FOLLOWS:

100 TABLETS CALCREOSE 4 GRAINS, A TUBE OF EPHEDRINE NASAL JELLY-MALTBIE
and complete information on these two popular prescription products

REMEMBER, Calcreose is not only a stimulant expectorant in bronchitis and of value in tuberculosis, but is also of value as a urinary antiseptic in frequent and burning urination and as an intestinal antiseptic in enteritis and similar disturbances.

Calcreose—calcium creosote—is a mixture containing in loose chemical combination approximately equal weights of creosote and lime and provides a form of creosote which patients will tolerate.

Ephedrine Nasal Jelly-Maltbie is a preparation for local relief of "colds", hay fever and conditions involving congestion of the nasal passages. It contains ephedrine sulphate one per cent, menthol one-fourth of one per cent and sodium benzoate one-half of one per cent, in a special, bland base.

Supplied in plain collapsible tubes—no printing. Each tube comes in blank carton with removable wrapper. A special nasal tip attachment permits convenient administration.

MALTBIE CHEMICAL COMPANY, Newark, New Jersey

ANNOUNCEMENT

OUT OF TOWN PHYSICIANS ARE CORDIALLY INVITED TO ATTEND CLINICAL DEMONSTRATIONS OF THE MORE IMPORTANT UROLOGICAL DISEASES. ARRANGEMENTS ARE AVAILABLE FOR THE EXAMINATION, STUDY AND TREATMENT OF CASES WITH CYSTOSCOPIC DEMONSTRATIONS. A COURSE IN CYSTOSCOPY WITH URETERAL CATHETERIZATION, KIDNEY FUNCTIONAL TESTS, PYELOGRAPHY, FULGURATION OF BLADDER TUMORS, ETC., WILL BE GIVEN.

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Emergency: WEst 1400

TRUTH ABOUT MEDICINES

(Continued from Preceding Page)

Accepted and Nonaccepted Viosterol Preparations. When the question of accepting preparations of irradiated ergosterol arose, the Council on Pharmacy and Chemistry adopted a common name, viosterol, for this product. This name is not protected by trademark or copyright. It appears to have been generally adopted and is used by all manufacturers whose products have been accepted by the Council, with modifications to indicate composition and strength in vitamin D, as viosterol in oil 100 D and cod liver oil with viosterol 5 D. These products are all required to be physiologically standardized according to the method given in New and Nonofficial Remedies and may be relied on to have the composi-

tion and antirachitic strength claimed on the label. Therapeutic claims other than those permitted by the Council are not made for them. While it is desirable that the short, concise, descriptive name viosterol be generally adopted to designate irradiated (activated) ergosterol, there is a danger that it may be used in connection with some preparations in such a way as to give the impression that a product that has not been considered or accepted is one of those accepted for inclusion in New and Nonofficial Remedies. In order not to waste his time and his patient's money (or worse) by using a product of unknown strength or composition, the physician should make certain that it has been accepted by the Council on Pharmacy and Chemistry. This can be determined by a statement to that effect on the label of the prod-

(Continued on Page 30)

LIVERMORE SANITARIUM



The Hydropathic Department devoted to the treatment of general diseases excluding surgical and acute infectious cases. Special attention given functional and organic nervous diseases. A well equipped clinical laboratory and modern X-ray Department are in use for diagnosis.

The Cottage Department (for mental patients) has its own facilities for hydropathic and other treatments. It consists of small cottages with homelike surroundings permitting the segregation of patients in accordance with the type of psychosis. Also bungalows for individual patients, offering the highest class of accommodation with privacy and comfort.

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1. Climatic advantages not excelled in United States. Beautiful grounds and attractive surrounding country.
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Keeps the underarms
dry and odorless.

Samples mailed on
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Send free NONSPI
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An institution fully equipped for the study, diagnosis and treatment of neoplastic disease.

Radiation therapy and modern electro-surgical methods featured.

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Satisfying the Most Discriminating . . . Golden State



Rigid safeguarding of the purity and richness of its products—combined with efficient service—has gained for Golden State milk products an enviable reputation.

Its satisfied customers are Golden State's best endorsement

Golden State Milk Products Company

MILK / CREAM / BUTTER
ICE CREAM / COTTAGE CHEESE

TRUTH ABOUT MEDICINES

(Continued from Page 28)

uct, by the occurrence on the label or package of the seal which the Council permits manufacturers of accepted products to use, or by direct inquiry to the American Medical Association.—(*Jour. A. M. A.*, June 14, 1930, p. 1923.)

Flaxolyn.—"Flaxolyn" purports to be the "discovery" of one H. H. Luntz. For some time Flaxolyn was a mixture of powdered herbs, but the alleged formulas have varied with the years, and in no instance have quantities been given. Today, Flaxolyn comes in two forms—powder and liquid. The report of the National Better Business Bureau on the testimonials used in Flaxolyn advertising furnished evidence to warrant the total rejection of Harris H. Luntz's Flaxolyn advertising.—(*Jour. A. M. A.*, June 14, 1930, p. 1936.)

Super D Brand Cod Liver Oil.—The Upjohn Company markets a product "Super D Brand Cod Liver Oil." The advertising that is issued for this preparation reads as if the product were cod liver oil fortified by the addition of irradiated ergosterol. The Upjohn Company has not requested consideration of the preparation by the Council on Pharmacy and Chemistry and so far the Council has not reported on it. The Council has announced the acceptance for New and Nonofficial Remedies of the following brands of cod liver oil with viosterol 5 D: Abbott's Cod Liver Oil with Viosterol 5 D (Abbott Laboratories); Parke, Davis & Co.'s Cod Liver Oil with Viosterol 5 D (Parke, Davis & Co.); Squibb's Cod Liver Oil with Viosterol 5 D (E. R. Squibb & Sons); Squibb's Cod Liver Oil with Viosterol 5 D, Mint Flavored (E. R. Squibb & Sons). —(*Jour. A. M. A.*, June 14, 1930, p. 1939.)

No Intestinal Antiseptic.—There is really no such thing as an intestinal antiseptic, if that term is defined as equivalent to disinfectant, there being no known influence capable of killing the micro-organisms in



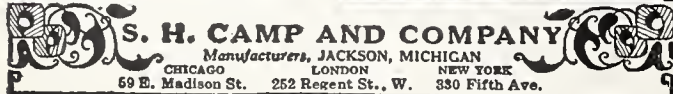
Performing a Difficult Job in a most satisfactory way

Designed for relief of scrotal hernia—this garment performs its work better than any belt or truss on the market.

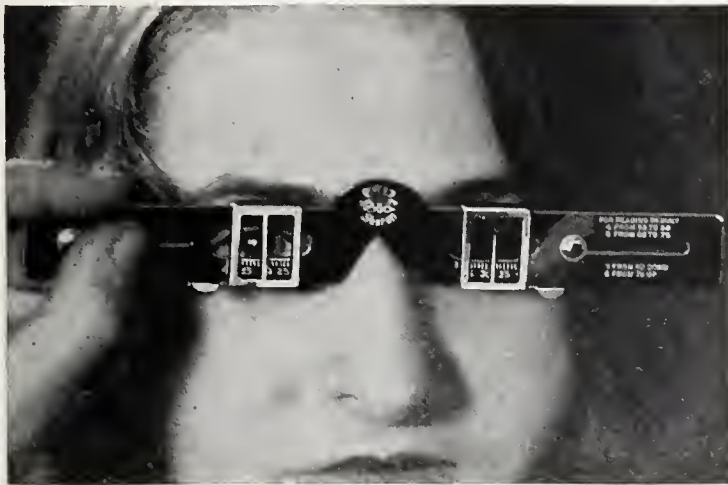
It hugs the body closely, following the groin line. Beneath—a fitted, resilient pad protects the ruptured part. Perineal straps fitting close to the side of the leg hold the pad firmly. No slipping from place. No irritation. The CAMP PATENTED ADJUSTMENT, lacing at back, pulling from lower front, governs tightness and pressure.

A support affording decided comfort to the patient. In different body heights, all sizes. Sold at the better drug and surgical houses.

Write for physician's manual



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DOCTOR...

Here's a new instrument which has been long needed—

THE SHUR-ON PUPILLARY GAUGE

This instrument measures accurately the interpupillary separation. It also measures the distance from the crest of the nose to the pupil of the eye individually. The movable

shutters permit separate measurements of the patient's eyes. The use of the instrument will save time and money. It eliminates needless changing of lenses, particularly bifocals. Made of instrument steel, japan finish, with white calibrations. Comes in handsome all-leather case. Priced \$6.50.

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SPOKANE

the living intestine. If the term is defined to include inhibition of the growth and diminution in the number of intestinal microbes, then diet (milk diet in most adults) constitutes perhaps the most important influence of that kind. Mild mercurous chloride might qualify as an efficient drug with a tendency in this direction. Phenolsulphonates (sulphocarbolates) are worthless.—(*Jour. A. M. A.*, June 14, 1930, p. 1939.)

Yeast.—Yeast has so uncertain a laxative effect that it is hardly justifiable to class it among the cathartics. It might more appropriately find a place among the laxative diet factors alongside bran, honey and prunes. Its content of vitamin B makes it of specific value in skin eruptions due to vitamin B deficiency, such as those occurring in pellagra. That it is of much value in other skin troubles, such as acne or furunculosis, is doubtful. The history of yeast suggests that it has a therapeutic value, but that this value is slight indeed.—(*Jour. A. M. A.*, June 14, 1930, p. 1939.)

Tebex, Another Alleged Consumption Cure.—Tebex, which is put out by the Tebex Laboratories, Flanagan, Ill., is, according to the carton and bottle label, "For Coughs." The circular which accompanies the trade package describes nine cases of tuberculosis, all of which are alleged to have been cured by taking Tebex. From its examination the A. M. A. Chemical Laboratory concludes that Tebex is essentially a petrolatum emulsion to which has been added some creosote.—(*Jour. A. M. A.*, June 21, 1930, p. 2014.)

Possible Death from Drinking Ethylene Glycol ("Prestone").—A death is ascribed to drinking Prestone. Prestone is ethylene glycol. It is an excellent anti-freeze agent for automobile radiators but a questionable beverage. Ethylene glycol has been introduced as a non-toxic substitute for benzene in lacquers and paints. There is no record of untoward effects from its proper use. Taken as a beverage, intoxication and death are reasonable expectations.—(*Jour. A. M. A.*, June 14, 1930, p. 1940.)



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Disorders

Home for Aged and
Infirm

A quiet, secluded place in the country

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Inhalant Ephedrine Compound, No. 20, for treatment of head colds and nasal congestion. A combination of 1 percent ephedrine in oil, with camphor 0.66 Gm., menthol 0.66 Gm., and oil of thyme 0.31 cc. in 100 cc. Supplied in ounce and pint bottles.

Three percent aqueous solutions of both ephedrine sulphate and hydrochloride are available, for use full strength or diluted with distilled water as preferred by physicians. Supplied in ounce and pint bottles.

Inhalant Ephedrine Plain, No. 21, designed to meet the requirements of physicians who prefer a plain oil solution uncombined with other agents. Indications same as for Inhalant Ephedrine Compound, No. 20. Supplied in ounce and pint bottles.



Ephedrine Jelly contains ephedrine sulphate 1 percent, eucalyptol 0.1 percent, with aromatics in a water-soluble base. Designed for use with children. It is supplied in one-half ounce nasal-tip tubes.



The formula for Ointment Ephedrine Compound is identical with that of Inhalant Ephedrine Compound, No. 20, except that the ointment has a base of petrolatum. Convenient for travelers. It is supplied in one-half ounce nasal-tip tubes.

Other Lilly Ephedrine Products supplied through the drug trade: Ampoules Ephedrine Sulphate, 3/4 gr., 1 cc.; Hypodermic Tablets, 1/4 gr. and 1/2 gr., of both ephedrine sulphate and ephedrine hydrochloride; Syrup of Ephedrine, 1 gr. to the ounce, and 2 grs. to the ounce.



Two sizes are available in Pulvules (filled capsules) of both ephedrine sulphate and ephedrine hydrochloride for oral use. Supplied in 0.025 Gm. (3/8 gr.) Pulvules and 0.05 Gm. (3/4 gr.) Pulvules in bottles of 40 and 500.

progress through research

ELI LILLY AND COMPANY
INDIANAPOLIS... U. S. A.

CALIFORNIA AND WESTERN MEDICINE

VOLUME XXXIII

AUGUST, 1930

No. 2

RECENT ENDOCRINOLOGY*

By H. LISSER, M. D.
San Francisco

IN a paper read before this Association in 1926, I held, with regard to such conditions as cataract, glaucoma, retinitis pigmentosa, keratoconus, retinal hemorrhage and detachment of the retina, blue sclera, vasomotor rhinitis, hay fever and otosclerosis, that "in all of these conditions the fundamental cause remains obscure, even though the immediate or exciting cause may at times be recognizable. In all of them an incretory origin has been suspected, but in none of them has it been definitely established. It is not yet clear whether any relationship at all exists between endocrine disease and these important disturbances or malformations; or whether, if a relationship exists, it be direct in the sense of being due to an actual deficiency, or excess, of secretion from one or another ductless gland; or whether the relationship is more indirect; either through fundamental constitutional factors in which imbalance of the endocrine system plays a part, or, whether the mechanism of cause and effect be through the intermediation of the autonomic nervous system.

"The etiologic solution of these conditions is beset with difficulties and our knowledge of their endocrine affiliations is, at present, meager and inadequate. I would not wish to be misconstrued as denying the plausible and almost seductive theories which attempt to link up these puzzling maladies with endocrine derangements, but I deem it necessary to point out that any sweeping conclusions in respect to such possible relationships are, to say the least, injudicious and premature at this time."

I do not think that the situation in the interim has materially changed. The possible endocrine relationship of these disorders remains as intriguing but as illy defined as, for instance, the endocrine aspects of mental diseases. During several years I have attempted to administer hormone therapy to patients suffering from the eye, ear, nose, and throat disturbances above alluded to, but the experience has not been sufficiently extensive, nor the results sufficiently decisive, to warrant a report at this time.

For the above reasons, and because I am confident that such a progressive membership as yours would be interested in medical discoveries even though they have no immediate connection with your own specialty, I am taking the liberty of presenting to you some significant and rather recent developments in the field of endocrinology.

DIABETES AND ARTERIOSCLEROSIS

The brilliant discovery of insulin proved such a stirring stimulus to clinical and experimental investigation that the treatment of diabetes mellitus, during the "Banting Epoch," has been remarkably perfected. Certainly no adult diabetic need ever die of his diabetes *per se*; and, provided he does not die from accident or of some totally unrelated disease, his eventual death will not be due to diabetes itself but to the complications of diabetes, paramount among which is arteriosclerosis. The properly treated diabetic therefore has every chance to grow old and acquire senile degenerations. With the object of investigating the direct influence of diabetes upon the development of arteriosclerosis, my associate, Dr. H. Clare Shepardson, was afforded the opportunity (by Doctor Joslin) of studying intensively fifty cases of diabetes mellitus in individuals under forty years of age, who had had the disease at least five years. It is obvious that young patients were selected for this purpose, because if diabetes has any specific effect in producing arteriosclerosis this should be evident in individuals in the prearteriosclerotic age, namely, before forty years. Perhaps the most significant result of this study (which included the detection of early calcification of peripheral arteries by roentgen rays) was the surprising observation that arteriosclerosis was rather less frequent than previous reports seemed to indicate. After careful analysis of the data obtained from the anamnesis, clinical findings, diet, chemical investigations, and x-ray studies, Doctor Shepardson concluded that the explanation for this diminishing frequency of arteriosclerosis was probably to be found in the widespread and wiser use of insulin which permitted better utilization of fats and therefore less cholesterol storage. It is the latter factor in all likelihood which has a considerable bearing on the arteriosclerotic process. As a consequence of this improved therapy it is not unlikely that the ophthalmologist will, in future, see less diabetic retinitis than he does today.

* Read before the annual meeting of the Pacific Coast Oto-Ophthalmological Society, Salt Lake City, July 1, 1929.

HYPOPHYSEAL DIABETES

The Islands of Langerhans furnish insulin, and to this important extent are immediately and vitally concerned with carbohydrate metabolism, but the incretory portion of the pancreas is probably not the only component of the ductless glandular system regulating glucose tolerance. Whether the hypophysis plays a rôle under normal conditions is not clear at present, but it is increasingly apparent that profound disturbances of hypophyseal function have, as part of their widespread effects, alterations in glucose consumption and elimination. Cushing and Davidoff found twenty-five instances of hyperglycemia with or without glycosuria in one hundred verified cases of acromegaly, a percentage too high to be accounted for on the grounds of mere coincidence. By "verified cases" is meant the actual finding of the histological picture of a chromophilic adenoma, the invariable pathological cause of acromegaly. Indeed, this constant microscopic appearance may be contrasted with the inconstant, meager, and relatively unconvincing changes in the Langerhans tissue of the pancreas, supposedly the seat of diabetes mellitus. Except for minor details, the glycosuria and hyperglycemia of acromegaly is in most respects quite similar to the ordinary clinical picture of diabetes mellitus.

Since the idea of an independent and coincident diabetes in from 25 per cent to 40 per cent of acromegalics may be summarily dismissed as an unwarranted straining of the laws of chance, we are forced to conclude that the impairment of carbohydrate metabolism accompanying acromegaly must be due to one of three functional deviations: (1) that the excessive secretion from the anterior lobe of the pituitary produces alterations in dextrose metabolism by antagonistic effect on insulin secretion or insulin activity. This assumption assigns the initial responsibility to the hypophysis which in turn secondarily influences the insulinary portion of the pancreas; (2) that the exaggerated secretion from the pars anterior, with its consequent visceromegaly, impairs the capacity of the liver to store glycogen; (3) or finally, that the hypophysis is primarily and solely responsible for the hyperglycemia and glycosuria.

With reference to the latter assumption it is interesting to note that Cushing and Davidoff report, in six cases of acromegaly, a definite lowering in the blood sugar levels following partial hypophysectomy. Allen and Lisser have recently published studies in a case of acromegaly in whom a similar lowering of blood sugar levels was accomplished by inhibitory roentgen ray therapy to the hypophysis. Radiation was employed in reducing hypophyseal function in the same manner and for the same purpose as when administered to the thyroid in a case of Graves' Disease. These results are at least suggestive of the possibility that direct therapeutic attack on the hypophysis itself is capable of influencing glucose tolerance. However, it remains unsettled whether

this effect is immediate and direct or through intermediation of the ductless glandular portion of the pancreas.

HYPOPHYSEAL INFANTILISM WITH HYPOGLYCEMIA

Many authorities have come to regard the syndrome of skeletal-genital-retardation-without-adiposity as specifically due to preadolescent deficiency of the anterior hypophysis. This hypofunctional state is the opposite of gigantism (preadolescent hyperpituitarism). Recalling the hyperglycemia of acromegaly, it is not surprising that the antithetical condition of hypoglycemia should occur when hypophyseal function is diminished. In this connection reference may be made to a lad of sixteen years who was an excellent example of this syndrome of hypophyseal infantilism. His father was just short of six feet in height and his older brother is slightly over six feet tall. His thirteen-year-old sister, although three years younger, was of the same height as the patient (4 feet 11½ inches). He was not obese. Secondary sex characteristics were absent; his face was smooth, entirely devoid of beard, and no axillary or pubic hair had yet appeared; his voice was still high-pitched; genitalia were infantile and he had never had seminal emissions. Although there was no evidence of pituitary tumor it was reasonable to assume a deficient function of the anterior hypophysis.

At this point it may be remarked that treatment with the anterior pituitary products now available is commonly regarded as fairly futile. The writer readily concedes that these commercial preparations leave much to be desired and are not comparable in standardization or potency to thyroid, adrenalin, pituitrin, insulin or parathormone; perhaps not even to the newer ovarian preparations standardized by the Allen and Doisy "spayed rat" method. Nevertheless the writer's experience forbids the assumption that these anterior pituitary products are entirely worthless. Results presently to be described, in the case above alluded to, were quite remarkable. The writer is aware that those critically minded will argue that the amazing improvement might have occurred in the natural course of events, without any organo-therapy at all. Nor can such a contention be disproved.

However this may be, the facts are as follows: Anterior lobe pituitary (Armour), grains five, put up in a salol-coated capsule, was administered three times daily, making fifteen grains per day. Patient continued this treatment faithfully for two and one-half years. No other treatment was administered. During this time he grew six inches, which is more than the normal rate of growth, and he became taller than his sister. Secondary sex characteristics had reached normality; there was abundant axillary and pubic hair, and patient was shaving regularly. Genitalia, which had been infantile, had reached full adult dimensions. Considering the specific nature of the treatment, it is interesting to note the effect on this patient's glucose tolerance. Before treatment the blood sugar was as follows: Fasting,

.079 milligrams per one hundred cubic centimeters; one-half hour after glucose, .091 milligrams per one hundred cubic centimeters; one hour after glucose, .066 milligrams per one hundred cubic centimeters; two hours after glucose, .047 milligrams per one hundred cubic centimeters. This is a strikingly "flat" curve showing hypoglycemia and markedly increased glucose tolerance, the precise opposite of what is found in acromegalic diabetes. After receiving corrective anterior pituitary therapy for two years, and with no changes in diet, a second glucose tolerance test showed a remarkable change: Fasting, .091 milligrams per one hundred cubic centimeters; one-half hour after glucose, .143 milligrams per one hundred cubic centimeters; one hour after glucose, .121 milligrams per one hundred cubic centimeters; two hours after glucose, .060 milligrams per one hundred cubic centimeters. This latter test demonstrates a decided change and may be considered normal. Specific replacement therapy was signally efficacious as regards growth, sex development, and glucose metabolism.

ACROMEGALY AND AMENORRHEA

Returning to the interesting malady, acromegaly, I wish to call attention to one of its common secondary effects, in women, amenorrhea. Davidoff, in a study of the symptomatology in 100 histologically verified cases of acromegaly, from Cushing's Clinic, reports that in forty-nine (87 per cent) of fifty-six female cases there existed a disturbance of the menstrual cycle amounting usually (in 73 per cent) to a complete amenorrhea by the time they first came under observation. This cessation in the forty-one cases occurred at an average age of only 31.4 years, "twenty years younger than the average normal time of menopause, which the recent studies of Dickenson and Pierson put at forty-nine years." "The frequency of premature cessation of menstruation occurring . . . so early in the disease, would at first sight appear to be incompatible with the conception of pituitary hyperactivity, for it is well known that in another and far more common type of pituitary disorder termed hypopituitarism, which is taken to be the exact antithesis of acromegaly, though also due to an adenoma of the gland, amenorrhea is an even more constant early symptom.

The experiments of Evans and his associates have thrown light on the subject. Their injections into female rats of anterior-lobe pituitary substance were originally made for the sake of studying the effects upon the oestrous cycle, and it was soon discovered that the hypophyseal extract very promptly interrupted this cycle. Later, however, in examining the ovaries of animals so treated, instead of finding shrunken, fibrosed organs, the ovaries were found to be actually larger than normal ones, and owing to their irregular surfaces were termed "mulberry ovaries." On microscopic examination these irregularities proved to be corpora lutea, each containing an undischarged and degenerated ovum.

Unfortunately there is no record of a satisfactory examination of the ovaries of a female acromegalic who was sufficiently young to have disclosed a condition—if indeed such a condition exists—analogous to the mulberry ovary produced in Evans' experimental animals. In any case, the frequent and early cessation of the menstrual cycle in acromegaly is so comparable to a similar effect produced upon the oestrous cycle of the rat by an excessive supply of anterior-lobe substance that a similar cause may certainly be assumed to be at work."

The writer has observed two typical cases of acromegaly in comparatively young women, both of whom gave a history of complete amenorrhea of four and seven years respectively when first seen. One patient was twenty-four years old and had ceased menstruating at twenty years of age; the other woman was thirty-three years of age and had ceased menstruating seven years before.

ANTERIOR PITUITARY HORMONE DIAGNOSIS OF PREGNANCY

It is an ever-recurring surprise and delight to witness discoveries in clinical medicine unraveled, amplified, and harmoniously linked with revelations from the experimental sciences, often many years intervening. Thus the recognition of amenorrhea, as a symptom of acromegaly, dates back fully twenty-five years, while Evans' experimental explanation (if such it be) is but two or three years old. Similarly, Erdheim and Stumme many years ago called attention to the invariable hypertrophy and hyperplasia of the anterior hypophysis during pregnancy. This cytological observation has had, recently, unexpected ramifications. I refer to the startling discovery by Zondek and Aschheim of the presence of anterior-lobe hormone in the urine of pregnant women. This was made possible by the important work of Stockard and Papanicolaou (1917) and Evans and Long (1922) which demonstrated the existence and the exact details of the cyclic estrual changes that occur in laboratory animals. From these fundamental studies standard tests have been evolved for the identification of an ovarian and an anterior pituitary hormone. The test for ovarian hormone consists in the production of characteristic estrual changes in adult spayed mice (Allen-Doisy Test); the anterior pituitary hormone will not produce estrus in a spayed animal. On the other hand, the test for the presence of anterior pituitary substance is the induction of estrus accompanied by ovulation in immature mice (Zondek and Aschheim test). About three years ago Zondek and Aschheim, and P. E. Smith, working independently, were able to induce precocious sexual maturity in young mice and rats by the implantation of anterior hypophyseal substance. As stated by Evans, "examination of the young animals after they had been killed showed that the effect was induced by a remarkable stimulus to ovarian development, a stimulus resulting in the ripening of an unusually large number of ovarian follicles and the liberation of eggs susceptible of fertilization." Follow-

ing up these observations Zondek and Aschheim, by injecting urine into immature mice as a test for pregnancy, found only four positive reactions in 254 controls, whereas the test was positive in 193 out of 197 specimens of urine from pregnant patients. Furthermore, the anterior pituitary hormone appears in the urine very soon after conception. This illuminating discovery will have its practical application in permitting a positive diagnosis of pregnancy much earlier than has been possible hitherto. Indeed the diagnosis has been made as early as the nineteenth day of pregnancy in a case where circumstances left no doubt as to the date when pregnancy originated. By this same Zondek and Aschheim test Fluhmann has recently been able to prove the presence of anterior pituitary hormone in the blood during pregnancy. This combined work of several scientific investigators in experimental research constitutes a useful contribution to the daily practice of medicine, especially obstetrics.

ANTAGONISM OF ANTERIOR HYPOPHYSAL GROWTH AND SEX HORMONES

Important researches during the last few years in the Anatomical Laboratories of the University of California, under the direction of Professor Evans, have contributed materially to our knowledge of the active hormonal principles in the anterior lobe of the mammalian hypophysis. It is now quite certain that there are at least two distinct and separable hormones obtainable from this glandular portion of the pituitary body. The growth hormone has been secured in a sterile, easily absorbable and almost protein-free solution. It is extremely potent and when administered parenterally to young rats produces indubitable gigantism. Its chemical concentration for clinical use in human beings is eagerly awaited, for it will then be possible to correct the dwarfism which characterizes hypophyseal infantilism, provided, of course, that the treatment is administered before epiphyseal unification prevents further growth. Evans also showed that this growth hormone induces lutein transformation in ovarian follicles in various stages of development, interfering therefore with ovulation by enclosing the ova in the abnormally constituted corpora lutea and preventing the occurrence of estrus during the time of administration of the hormone. It is thought, as stated elsewhere in the paper, that this experimental effect resembles and explains the amenorrhea of acromegaly. It was also demonstrated that an absolute loss in weight of the testis with lowering of sex interest occurs when males are treated in the same way with the growth hormone. A rather contrasting effect, however, was obtained by Zondek and Aschheim, and P. E. Smith, working independently, by daily implantations of fresh anterior pituitary substance into young mammals (mice and rats), namely, precocious sexual maturity. In other words it was shown that the anterior hypophysis produced a maturity-provoking or sex-stimulating hormone. Evans and Simpson have been able to separately extract the growth-stimulating hormone and the

maturity-provoking or sex-stimulating hormone. They have found, however, under certain conditions that an antagonistic action exists between them. *Alkaline* aqueous extracts were found to be maximally effective in stimulating growth in adult rats at levels which never provoke maturity in young animals. On the other hand *acid* aqueous extracts are effective in provoking maturity in young animals at levels which do not stimulate growth in adults. They found, furthermore, that alkaline and acid extracts of human placenta contain much of the maturity-provoking hormone, but little of the growth hormone. Also, that the urine of pregnant women (which, as mentioned before, has been utilized for the diagnosis of pregnancy) contains the maturity-provoking but not the growth hormone. The maturity-provoking hormone passes the Berkefeld filter in acid solution but the growth hormone does not do so; there are other chemical distinctions. Anterior hypophyseal extracts giving well marked growth effects nullify the maturity-provoking effect secured by other ways of administering anterior tissue. Whether the converse obtains, namely nullification of growth effects by administration of the sex hormone, is not yet established. These two important incertions come from two sharply separated hypophyseal cell types—the growth hormone from the eosinophilic cells of the anterior lobe, and the sex hormone from the basophilic cells of the anterior lobe.

HORMONES OF THE POSTERIOR HYPOPHYSIS

Recent work by Kamm and associates seems to reveal a similar separation for the hormones from the posterior lobe of the hypophysis. There was considerable discussion formerly as to whether the several characteristic effects of posterior lobe extracts (including extracts from the pars intermedia and neural stalk) originated from multiple specific crystalline principles (Fühner, Fenn, Dale, and Dudley) or whether these various effects were ascribable to one specific hormone. As recently as three or four years ago Abel and his associates championed the unitarian point of view. They were able to isolate an extraordinary potent principle, in the form of a tartrate, for which they did not claim entire chemical purity, but which they insisted possessed all the diverse physiological actions of a well-prepared aqueous extract, namely, powerful smooth muscle stimulation, prolonged rise in arterial pressure, brief diuretic action in the green-fed rabbit, and striking antidiuretic effect in diabetes insipidus. Kamm, however, claims to have separated two extracts which he has named "oxytocin and vasopressin" (also known as Pitocin and Pitressin); the former has a strong stimulating effect on smooth muscle but contains very little of the blood pressure raising principle; whereas the latter, vasopressin, produces a profound rise in blood pressure but little or no contraction of the uterus. These two posterior lobe extracts (or hormones?) are marketed separately in suitable ampoules.

PARATHORMONE

That the parathyroid glands have some special function was realized first about thirty years ago, when the syndrome of tetany was recognized as due to their inadvertent removal in the course of operations for goiter. Surgeons speedily appreciated the importance of conserving these tiny glandules. For the next twenty-five years our knowledge of parathyroid function made very little progress. That there was some relationship to calcium metabolism was suggested by the work of MacCallum and Voetglin, who demonstrated the relief to be obtained in tetany from the administration of calcium salts. It was not until 1924, however, that real interest in the parathyroids was rekindled through the announcement by Professor J. B. Collip of "the extraction of a parathyroid hormone which will prevent or control parathyroid tetany and which regulates the level of blood calcium." Soon thereafter reports began to appear of the clinical use of this new extract. There may prove to be a wider field of usefulness for this hormone than now appears to be the case, but its specific beneficial effect in tetania parathyreopriva, infantile tetany, and maternal tetany, has proved immensely valuable in the treatment of these dangerous maladies (Collip and Leitch, Davidson, Lisser and Shepardson, Snell, Hoag and Rivkin, Lisser Smith, Shepardson, and others). Thus another potent and biologically standardized ductless gland extract had been added to the list of thyroid, insulin, adrenalin and pituitrin.

HYPERPARATHYROIDISM

Until recently we had been familiar with the clinical complex of tetany resulting from an *inadequate* supply of parathyroid extract (*hypoparathyroidism*); but just as experience gained with insulin led to the recognition of a disease that results from spontaneous *overactivity* of the pancreas, namely, *hyperinsulinism*, so, in a similar manner familiarity with the hormone of the parathyroid gland has revealed another clinical entity, *hyperparathyroidism*. Barr, Bulger, and Dixon (1929) deserve the credit for first formulating the syndrome of hyperparathyroidism and reporting a typical case. It should be admitted, however, that Mandl, of the Hochenegg Clinic in Vienna (1926), and Gold from von Eiselberg's Clinic (1927), had previously reported almost identical cases, also with extraordinary improvement following extirpation of a parathyroid adenoma, but without drawing the inference that they were dealing with a definite clinical entity due to exaggerated parathyroid secretion. The following evidence formed the basis for Barr's postulation of this strange clinical syndrome. Firstly—that benign multiple giant-celled tumors of bone, though rather rare, have been frequently found associated with osteomalacia; several of these cases were associated with parathyroid tumor or hyperplasia of the parathyroid; furthermore, some cases of osteomalacia have been complicated by bone cysts and bone swellings. Secondly—osteomalacia is associated with a nega-

tive calcium balance with increased excretion of calcium in the urine. Thirdly—that calcium renal stones with distressing urinary symptoms have been reported in cases of osteomalacia. Fourthly—a few cases of osteomalacia have been associated with muscular hypotonia (the opposite of the spasticity found in tetany) and complete inability to walk. Fifthly—in cases of osteomalacia associated with multiple cystic bone tumors, a high blood calcium has been found. Lastly—that Collip's Parathormone administered experimentally in excessive amounts produces (a) hypercalcemia, (b) increased urinary output of calcium and a negative calcium balance, (c) depletion of calcium in bone, and (d) muscular hypotonia. Barr and coworkers report the case of a woman aged fifty-six, who had a bilateral nephrolethiasis with urinary symptoms, marked muscular hypotonia with inability to walk, multiple giant cell sarcomata, areas of bone rarefaction, a blood serum calcium of 16 milligrams per one hundred cubic centimeters (normal, $9\frac{1}{2}$ to $10\frac{1}{2}$ milligrams per one hundred cubic centimeters), negative calcium balance with increased urinary calcium, and a nodule which at operation proved to be a parathyroid adenoma. Removal of the parathyroid tumor was followed by a prompt drop in the blood serum calcium (with temporary tetany), a positive calcium balance, and tightening of the teeth which had become loose. Barr, Bulger, and Dixon concluded that this mass of evidence justified the pronouncement of a new clinical syndrome, hyperparathyroidism, as definite and distinct as parathyroid tetany, exophthalmic goiter, myxedema, or acromegaly. In the short time since their article appeared, two more instances of this remarkable syndrome, including successful removal of a parathyroid tumor, have been reported by Wilder, Boyd, Milgram and Stearns.

Earlier in the paper the writer commented on the correlations which evolve between clinical medicine and the preclinical sciences and how bedside observations are elaborated, ripened and refined, sometimes a generation later, by discoveries in experimental laboratories. In the matter just reviewed we observe an instance of revelations the other way about, that is to say, a discovery of the chemical-physiological laboratory leading to the recognition of a new clinical syndrome. Thus a rather rare and puzzling malady, osteitis fibrosa, is now understandable as the bone-rarefying effect of an excessive parathyroid secretion.

PRESENT STATUS OF ORGANOTHERAPY

In conclusion let me recall to your minds the trustworthy hormones available to us as supplementary therapy for specific endocrine deficiencies. These include, in the order of their discovery, thyroid substance, adrenalin from the medullary portion of the suprarenals, pituitrin from the pars intermedia and posterior lobe of the hypophysis, insulin from the incretory portion of the pancreas, and parathormone from the parathyroids. A hint has been given earlier in this paper of some success with anterior pituitary products

though their efficacy is not to be compared with the five hormones just referred to. That we may hope for extremely potent growth-stimulating and maturity-provoking hormones from the anterior hypophysis has been alluded to in the description of Evans' brilliant experimental investigations.* The newer ovarian preparations, standardized biologically by the Allen-Doisey spayed-rat method, bid fair to excel the products formerly available. Ovarian extracts are now being prepared from the placenta and from amniotic fluid since recent researches have demonstrated the presence of the ovarian hormone from these sources. Some of the recent hypodermic preparations of these substances have been found quite efficacious in restoring menstruation, but their use has been somewhat hindered by the painfulness of the injections. A modification which promises to obviate both this pain and the inconvenience of repeated piques consists in administering the hormone in the form of vaginal pessaries since the vaginal mucosa readily absorbs the extract. As yet, no satisfactory extracts of testicular tissue, pineal body, or thymus have been prepared; and there is indeed some question as to whether the thymus is in truth a ductless gland.

Although adrenalin has proven of invaluable service because of its pharmaco-dynamic properties (as in the treatment of asthma) it has failed signally in the treatment of Addison's Disease, the only malady which we can positively attribute to adrenal inadequacy. It has become more and more apparent that this rather rare and invariably fatal disease results not only from failure on the part of the adrenal medulla, but what is probably of more vital consequence, from lack of hormones from the *cortical* portion of the suprarenals. To date no satisfactory preparation of adrenal cortex has been marketed commercially but my closing message to you is the hopeful news that such a product seems about to be achieved. The encouraging rumors, if one may so term them, emanate from two clinics in this country, namely, the experimental laboratories of Stewart and Rogoff at Western Reserve University, Cleveland, and Koehler's Laboratory in McLean's Clinic of the University of Chicago. The former investigators have conducted important experimental researches on adrenal insufficiency for many years and were finally able to so perfect their technique that dogs survived total extirpation of the adrenals for many weeks, thus producing a state of subacute adrenal deficiency. This had formerly been impossible. An experimental state of chronic deficiency such as we recognize in human beings as Addison's Disease, has not been achieved as yet. From these researches they developed an extract to combat the adrenal deficiency, from the cortex of the suprarenals, which they appropriately named "interrenalin." Preliminary reports indicate that this extract has been useful in combating clinical instances of

Addison's Disease. If a truly potent product is eventually obtained, we may reasonably hope to relieve many cases of mild asthenia and hypotension which resemble Addison's Disease, except for the absence of pigmentation and fatal termination.

In sketching these recent developments in endocrinology, the writer does not pretend to have covered all the painstaking labors of the last few years throughout the world in this fascinating field of medicine. It may have been noticed for instance that no mention has been made of experimental or clinical investigations concerning the thyroid gland, principally because the newer contributions have been in the nature of refinement, rather than of arresting novelty. Nor is it claimed that all noteworthy discoveries in the broad field of endocrinology have been given proper recognition. This could hardly be expected in a limited address.

It is hoped nevertheless that these glimpses into an increasingly important field of medicine will have proved of interest to the members of your society.

384 Post Street.

CAUSES OF FAILURE IN THE MEDICAL MANAGEMENT OF PEPTIC ULCER*

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DISCUSSION by Frederick A. Speik, M. D., Los Angeles; Henry Snure, M. D., Los Angeles; Roland Cummings, M. D., Los Angeles.

THE treatment and management of peptic ulcer is essentially a medical problem. Even after the surgeon has attempted skillfully to restore the disordered mechanics of the upper gastrointestinal tract, and has built a way around or boldly attacked the indurated and fibrosed ulcer-bearing tissue, still, the imminence of further complications and the needs of the patient demand vigilant and efficient guidance. I have always liked the expression of Dr. Robert C. Coffey, that surgical interference in peptic ulcer is simply a mechanical measure used as an aid to medical treatment.

There is, or should be, no contest between surgical treatment and medical treatment. Surgical aid is just as indispensable in certain cases of peptic ulcer as it is in diabetes to remove a hopelessly gangrenous appendage.

However, it should be generally recognized that since medical treatment implies the control of a relatively chronic condition or tendency, medical procedures to be successful must be carried out meticulously and in detail, without interruption, and with a sufficiently prolonged and efficient supervision, a supervision that takes ready cognizance of variations in the patient's condition and symptoms.

No regimen which simply includes diet, some powders, and a sheet of written directions will

* Since this paper was written Collip has announced the isolation and concentration of an ovary-stimulating hormone from human placenta. He states that it is effective orally. This extract may prove to be identical with the anterior pituitary sex hormone.

* Read before the General Medicine Section of the California Medical Association at the fifty-eighth annual session at Coronado, May 6-9, 1929.

ever succeed in the control of peptic ulcer. Furthermore, as in tuberculosis, if we can see the patient early and apply the "cure" the chance of an ultimate complete relief is greatly enhanced. The patients who cannot be controlled, or who do not understand the importance of carrying out the details of the treatment, who were not properly directed at first, or who continually slip from their regimen when better or symptom free, form a group with the highest percentage of failures in the medical management of peptic ulcer.

Of this I am convinced, after analyzing a number of histories of patients going to operation at the University of California Hospital. Surgery then was apparently indicated for several reasons, but, while nearly all stated their trouble had advanced in spite of medical treatment, and were classified as medical failures, in practically no instance did I consider their past regimen had been adequate or sufficient.

The therapy of peptic ulcer has been written and rewritten. There has been no noteworthy contribution to this subject since Sippy's article in 1912. There has been a voluminous literature, many proposals, and much controversy, but the basic essentials of treatment have not been materially altered. Methods have been refined and perfected and details added, but there has been nothing which has revolutionized our thoughts or procedures since then.

We eagerly scan the medical reviews for some new hope or inspiration in the control of essential hypertension, and race off on various therapeutic tangents, only ultimately to resume the essentials of rest, diet, and environmental control. We have our fads and fancies; but, as a group, we realize that the day-to-day control and the persistence of intelligently directed efforts accomplish the most.

ADEQUATE MEDICAL MANAGEMENT

In ulcer management we must have firm convictions and definite aims and procedures, and yet a plan not too inflexible, one adaptable to the type of individual and environment with whom and with which we are dealing.

Adequate medical management implies:

1. Surgical aid in perforating, dangerously penetrating, organically stenosing ulcers, and in the large infiltrating types, with a long chronic history of recurrences, in patients vocationally and psychologically unfitted for prolonged medical regimens. I should like to emphasize, however, that the findings of food retention and large six-hour barium residues do not mean hopeless stenoses until it can be shown that an efficient medical treatment has not or cannot change these conditions. The factors of spasm and tissue edema and swelling about or near an active ulcer must be eliminated. Cases of hemorrhage must be handled upon their individual indications; they are essentially medical cases.

2. *Initial hospital or home rest*, be it only for a week or several weeks until relaxation and the proper mastery of the regimen has been obtained.

3. Diet.

4. Medication.

5. Absolute elimination of ulcer symptoms; and proper bowel control by the method instituted.

6. Removal of contributing etiological factors such as (a) focal infections (in the head, abdomen, pelvis, or elsewhere), (b) unfavorable habits (in use of food, drink, and tobacco), and (c) nervous tension, either mental unrest and fears, or hyperactivity of the sympathetic system.

7. Continued education of the patient as to the nature of his disorder, the pitfalls in its treatment and the dangers of future recurrences, with an adequate plan to meet the first recurring symptoms.

AVOIDANCE OF CHRONICITY

Our most immediate concern in initiating a plan for ulcer management is to overcome the factors that prevent healing of the ulcer, and thus render it chronic. In respect to the above, essentially two schools of thought or theories of procedure have arisen in the treatment of peptic ulcer by medical methods.

The first we might term the "mechanical theory," based on the idea that increased gastric tension, hyperperistalsis, pylorospasm, etc., are the chief influences that prevent the ulcer from healing. Based on these assumptions, we have the so-called starvation plan of treatment with stinted diets and rectal therapy; and the smooth, non-residue diet, with frequent feedings of Alvarez.

The second, or "chemical theory," conceives that the secretions of the stomach and the resultant mixture with food, on account of chemical irritation and erosion of areas of malnutrition in the peptic region, produce the ulcer and prevent its healing. Therefore, this therapy is based on chemical neutralization by alkalis, the notable exponent of which, of course, is the Sippy treatment.

A third idea that peptic ulcers are a sensitization phenomena and form from blebs and areas of local edema due to hypersensitization to certain irritants (endogenous or exogenous) has led to foreign protein therapy, especially milk injections, novoprotein, and to efforts along the line of specific desensitization.

As yet, no conclusive evidence of the efficacy of this method of treatment has been produced.

Whoever attempts to treat peptic ulcer should have positive views on the proper method of procedure and definite aims or ends to attain as a check of the value of his therapy. Too much modification in the plan, too ready acquiescence to the whims of the patient, and the changing from one conception to another, lay a ready foundation for medical treatment failure.

I would establish as a first rule that the regimen employed should in a few days, a week or so, during which readjustments can be made, afford complete relief of the major symptoms and that thereafter these symptoms should not recur without adequate explanation.

In my own experience I have never seen a peptic ulcer with any history of chronicity, or previous attacks, yield to any method of treatment that did not include a more or less complete neutralization of the acid-eroding mixture which forms in the stomach after food, either by alkalis or by the aid of a gastro-enterostomy and the protection of the ulcer-bearing area in this way for many months.

Undoubtedly, the control of the mechanical factors are of the greatest importance, particularly that of spasm, and other therapy besides alkalization should be directed to that end with especial reference to nervous tension and mental unrest.

COMMON ERRORS IN TECHNIQUE OF MEDICAL MANAGEMENT

This paper is not intended to be an exposition of medical management of peptic ulcer, but to point out wherein failure commonly occurs in the successful carrying out of a regimen such as that given above.

Alkalization occupies a place of prominence in most treatments and, to my mind, it is most essential. It should be so regulated that, combined with rest and diet, absolute relief of symptoms of distress should follow speedily.

CHOICE OF ALKALINE POWDER

To accomplish this, the kind and quantity of alkaline powder used must vary with the patient, and we must keep constantly in mind our knowledge of the effects of the various alkalis, constitutionally and locally, on the gastro-intestinal tract. Soda bicarbonate, magnesium oxid, calcium carbonate, bismuth subcarbonate and subnitrate, and tertiary calcium phosphate and tertiary magnesium have proved the most useful. The first three, in various combinations, are most often employed. But our patients react quite differently to these. Magnesia may quickly produce a colitis with complicating symptoms of bowel distress, and the quantity should be varied to produce only one or two bowel movements daily. Calcium carbonate renders the stools bulky, and in many instances the dejecta are passed as hard, irritating balls, or rectal impactions ensue. This tendency varies with different individuals, and therefore the quantity given must be regulated by the reaction. Bismuth may act in a somewhat similar manner, and it may obstinately constipate many people. Therefore, as we observe the patient, distress symptoms must be segregated into ulcer distress, uncontrolled, and bowel disturbance that calls for proper variations in the formula of our alkaline powders. I have had many patients ready to stop medical treatment after alkalization on account of abdominal distress due to a deranged colon, which they ascribed to their ulcer, when the actual ulcer symptoms were absolutely gone. Of course, the elimination of these problems requires time, patience and perseverance, and a careful analysis of the day to day distress and symptoms.

TIME OF ADMINISTRATION

This analysis will also bring out any period of the day in which a constantly recurring distress symptom of pain, gnawing, or gas collection occurs which, if consistently repeated, is of great significance. Variations of intermediate feedings (such as milk and cream) and an increase in the amount of alkalization just before the period of onset of distress is then indicated. This constant study is very necessary at first, and we should not be satisfied until we have secured general abdominal comfort. Occasionally the tube should be passed at different times in the day, with the patient on his regular regimen, and the sufficiency of neutralization determined.

INTOLERANCE TO ALKALINE POWDER

Besides the really serious cases of alkalosis, which may occur in certain arteriosclerotic or nephritic individuals, there frequently are found cases of more or less mild intolerance to the various more soluble alkalis. These people say the powders "make them sick" and complain of headache, distaste for milk, subjective numbness and tingling of the hands and feet, aching of the muscles and general nervousness. Urine and blood nitrogen studies should be made in such cases, and if necessary the tertiary calcium phosphate or tertiary magnesium should be employed. In many of these cases the intolerance to alkalis is only temporary. These symptoms generally appear in the first two weeks or not at all, except in the arteriorenal cases. Regular urine and blood pressure readings should be made from time to time on all cases under treatment.

In analyzing the past treatment of the patients whom we found necessary to send to surgery in the University Hospital, many of whom labeled themselves as medical failures, I found almost invariably this careful analysis of the day to day distress and regulation of the alkalization accordingly, entirely lacking. Furthermore, the handling of their night periods was generally entirely inadequate. Probably in most of these patients the free hydrochloric acid had been allowed to remain in the stomach in appreciable quantities, and therefore the ulcer would not heal.

All too frequently careful questioning elicited the fact that after a month or two of treatment with consequent relief, the plan was stopped, to be resumed when the symptoms returned and discontinued when the symptoms left.

DISCUSSION OF PLAN IN TREATMENT

Night Rest.—It is conceded that if we could starve our patients long enough, without serious constitutional results, most peptic ulcers would heal without further treatment. Since this is impracticable, we should seize the opportunity of giving as much rest as possible to the stomach at night. The longer we can keep it empty the better. Yet how infrequently this is done. Patients are given milk or a small meal before going to bed,

and on awakening in the night they take milk or crackers again.

Of course, we are aware that the Sippy treatment calls for emptying the stomach every night before retiring. The hospital cases and patients facing an alternative of lavage or an operation accede to this willingly enough for a while, but the average ambulatory case, frequently a high-strung business man or society woman, will not carry out such a procedure unless compelled to do so by fear or increasing distress.

And yet we desire to insure stomach emptying with a more or less neutral food mixture. It therefore seems irrational to prescribe night feedings. Instead the last meal should be taken as early as possible, and if possible it should be the lightest meal. Following this, sufficient alkalinization should be instituted to keep the patient absolutely symptom free in the night.

All food after the evening meal should be forbidden, even milk. If there is night distress an additional powder should be prescribed. If this night distress persists, then lavage must be insisted upon and kept up regularly. This plan should be carried out regularly, without compromise, in cases with much residue or night hypersecretion with consequent pain, and the stomach should be left empty, or with a weak alkaline, belladonna solution in it. If an excessive night secretion is present, the stomach should again be washed out at midnight, preceded by sufficient alkalinization.

Frequently, ambulatory cases that have been symptom free backslide, due to home or business disturbances, and no variation in powders or diet will suffice to secure control. A strict regimen in a hospital, with nightly lavage, for two to three weeks (later continued at home) generally overcomes the difficulties. Several times a fluoroscopic study, made at the beginning of this period, showed considerable six-hour retention and an apparently hopeless situation for medical treatment which, when repeated, two or three weeks later showed no residue and very little deformity, with the patient absolutely symptom free.

INITIAL HOSPITALIZATION

In beginning treatment, hospitalization is best, as it affords an environmental change, complete rest, and better means of securing control and teaching management. It also saves time in observation. In active ulcer cases with much distress or certain complications, no other alternative should be permitted. However, there are some cases who psychologically react badly to hospitals, and others, upon whom the financial burden falls too heavily who may be efficiently treated at home in bed.

Whether we like it or not, a number of our patients remain ambulatory from the start and most of them do quite well. They are the milder cases, of course, with an annoying recurring dyspepsia, seen frequently in active business men. Occult blood is usually not present in their stools. Curtailment of their activities, longer hours in

bed at night, week-end rests, combined with the general plan described above, is in most cases sufficient.

DIET

The diet has been too frequently discussed and outlined in the various weeks and stages of treatment to warrant particular comment here. In general, the meals should be small and simple with relatively few food selections for any one meal, and these should be foods that leave the stomach quickly, such as carbohydrates, vegetable purees, and foods which have the power of entering into immediate combination with the hydrochloric acid, thus producing a neutralizing effect. Milk, 20 per cent cream, and eggs are especially potent in this respect. Minced and ground meats are generally well tolerated. Meat extracts should not be allowed. Where milk is incompatible I have found orange juice and egg albumen useful. Finally, any bland diet, such as the smooth diet of Alvarez, may be followed. As a rule the evening meal should be light to promote the night fast. Our failures have not been attributable so much to wrong diet as to other factors of management.

MEDICATION

The chief drugs used are atropin and belladonna, and the various alkalis, including bismuth. Recently adrenalin and luminal in small doses, combined with belladonna, has been extremely useful in certain nervous cases with mental unrest, insomnia, and a generally hypertonic sympathetic nervous system.

ELIMINATION OF ULCER SYMPTOMS

Finally, to avoid failure, we should see our patient often enough and analyze his symptoms carefully enough to make sure that all ulcer distress and irritation have disappeared. If not, our regimen must be altered to accomplish this; whether it means different feedings, increased alkalinization, removal of nervous factors, bed rest, or stomach lavage.

If we permit a five o'clock distress to recur regularly, no matter how apparently trivial, or a night disturbance to be handled as the patient sees fit, undoubtedly insidious progression is occurring in the ulcer and failure is imminent. We must establish abdominal comfort as our criterion of success.

REMOVAL OF CONTRIBUTING ETIOLOGICAL INFLUENCES

When the regimen is well established and the symptoms are under control, any probable etiological influences should be removed.

Root infections in teeth, pyorrhea, and other forms of gingivitis should be eradicated. Questionable tonsils should be removed and sinus infections should be treated. I have been rather skeptical of the advantage to be obtained by appendectomy, unless a very definite infection could be proved, and then have been in favor of removing the appendix more because it was potentially dangerous than for any effect it might have on the ulcer.

Frequently, in the course of our study of an ulcer case, we unearth a quiescent gall bladder with one or more stones. I have two or three such cases now, with definite ulcers, two duodenal and one gastric, completely free of all digestive symptoms, yet with definitely diseased gall bladders, without any clinical signs. I suppose that ultimately they should be removed *per se*, but as to their relationship to the ulcer, I am in doubt.

Prostatic infections should be treated properly.

In pelvic inflammatory disease in women, associated with a peptic ulcer, again the question arises, as in appendix and gall-bladder involvements, whether we should proceed more radically with surgery than we would if the local condition alone were found. Concrete evidence of the influence of these conditions on peptic ulcer is hard to obtain, but the possibilities are intriguing.

Along the same line we must do our best with any constitutional diseases, such as diabetes, nephritis, syphilis, and any deficiency states, but for this we may be thankful that comparatively few of our ulcer cases include any such complications.

On the other hand, I have come to believe that the nervous system exerts a profound influence both as a causative and exacerbating factor in the pathology of ulcer. So-called pylorospasm and hyperacidity without a demonstrable lesion is frequently seen, and while many of these cases may be due to a latent adjacent gall-bladder disease or to other abdominal pathology, or even to a non-visible mucous membrane erosion of the peptic area, by far the greater number must be put down as functional disturbances. What of their future if uncontrolled? Does ulcer later develop in any of these?

While exact proof has been lacking, I have certainly seen active, recent ulcers come to light in individuals previously free of any especial dyspeptic symptoms, following unusual mental stress and strain, during which period there had been excessive keying up of the whole nervous system: hurry, worry and fatigue, without any appreciable time for relaxation or let-down. In most of these cases, meals have been bolted or not taken, and, as they describe it, "the stomach has been tight and knotted up." High pressure business and professional men, women active socially or in the business world, are the functional sufferers, and perhaps the potential developers of peptic ulcer. Excessive contractions and spasm of the upper gastro-intestinal tract, with deep waves and pylorospasm and increased secretion, can be readily demonstrated by the fluoroscope, without deformity of outline. The duodenal syndrome, to a degree, is present; why not later the ulcer?

The shock of an accident frequently leaves this disturbance in its wake. In the past year I have seen four or five industrial accident cases with the above findings: spasm, hyperacidity, and an almost perfect ulcer symptomatology, but without demonstrable deformity, clearly on a nervous tension basis. On the other hand, I can recall the

discovery of duodenal ulcers for the first time, after unusually protracted mental and nervous strain, in patients of long acquaintance, but who had never previously complained of digestive disorders.

Perhaps the ulcer diathesis was latent in these individuals and needed but a nervous disturbance to bring it forth.

At any rate, many of our milder, ambulatory cases could very well emanate in this manner, and certainly when once established, an ulcer may be definitely exacerbated by these factors of nervous irritation and strain.

Therefore, not only in the prophylaxis, but in the therapy of ulcer must we reckon with nervous influences. Many failures in the cure result because we do not properly understand or influence the psychology of such individuals. The business and home environment, daily contacts, the mental unrest and fears, the continual drive without sufficient relaxation, as well as habits of eating and sleeping, need our attention, and radical alterations in the manner of living should be brought about if indicated.

We have previously given atropin and belladonna for local spasm, but, in addition, I have found small, regular doses of luminal of great assistance in this type of case; or in some cases, bromural, and often a mild hypnotic at night.

EDUCATION OF PATIENT

Finally, I believe it is essential to educate the patient with peptic ulcer as to the nature of his disorder, its intrinsic chronicity, tendency to insidious exacerbation, and even recurrence after two or three years of freedom. This teaching should go on, as in tuberculosis or diabetes, until the patient has the viewpoint of the physician and understands how to combat his problems.

To do this requires periods of explanation. Most patients start with the idea that it is as simple to cut out an ulcer as it is to cut out an appendix, or, if not surgically inclined, they will invariably slip away and drop their regimen with the first remission of symptoms, unless they have been taught that a recurrence is sure to follow if they do. Facts that are self-evident to us must be meticulously conveyed to the patient. The importance of regular contact with his physician for at least a year must be made clear. Without desiring to produce a hypochondriac, we are desirous to develop some self-analysis of the patient's digestive feelings, to teach him what they may mean, how to act, or when to seek advice. Reassurance, dissipation of cancer phobias, and an insight into future possibilities are essential. Unless we can give him, early, a pretty general knowledge of his problems and our own aims, he will leave his physician with his first reaction of distaste to the whole treatment, and he may do it anyhow.

I have found it useful to supplement these verbal instructions with a typed list embodying

the above principles, a summary of technique and time to be spent in carrying out a medical plan, and very definite rules for his future guidance after his present ulcer has healed.

384 Post Street.

DISCUSSION

FREDERICK A. SPEIK, M. D. (427 West Fifth Street, Los Angeles).—Although gastric and duodenal ulcers heal under proper medical treatment, we must be constantly on the alert for associated pathology. Intelligent observation, with frequent x-ray examinations, shows that the biggest and deepest ulcers gradually get smaller until they disappear, and the patient is symptom free. However, many cases in which lesions of the portal lymphatic system exist may have a return of symptoms or a recurrence of ulcer, because these lesions may be foci of infection in the gall bladder or appendix.

Sippy stated that, in order to treat peptic ulcer intelligently, it is necessary to determine the age, the type, the location and complication of ulcer. It is necessary to go further and determine if there are any lesions of the portal system, such as cholecystitis, appendicitis, pancreatitis, hepatitis, or peritoneal adhesions.

The taking out of an acute or chronic appendix does not cure the ulcer; note the number of cases in the table below who had an appendectomy before an ulcer was discovered. This is one reason why patients do not always get well following an appendectomy. There is pathology elsewhere.

Patients with foci of infection in the portal lymphatic system should have them removed at earliest recognition. If physicians are on the alert for associated ulcer pathology, the diagnosis will be made more promptly, and better end-results will be had.

The lymphatic drainage of the stomach, liver, pancreas, and appendix are anatomically closely connected.

In 60 per cent of cases reported above, gastric duodenal ulcer had associated pathology in the liver, the pancreas, the gall bladder, and the appendix.

Healed ulcer will not leave the patient symptom free unless the associated pathology is eradicated.

In a review of 156 cases treated in the last twenty-one months, the records show:

Appendix removed prior to diagnosis of ulcer.....	35
Chronic appendix diagnosed during management....	28
Appendix out during management.....	8
Appendix out following treatment.....	6
Gall bladder removed prior to diagnosis of ulcer....	6
Gall bladder diagnosed chronic during management	26
Gall bladder out during management.....	2
Gall bladder with stones.....	3
	114

That is, 114 cases out of 156 cases showing associated pathological conditions.



HENRY SNURE, M. D. (1501 South Figueroa Street, Los Angeles).—The causes of failure in medical management of peptic ulcer are as interesting to the roentgenologist as to the internist. It is not unusual to re-ray the same patient at yearly intervals, and for a different referring physician or surgeon each time, any one of the latter having a high percentage of success in the management of ulcer. These cases seem to fall largely in the class of nervous, high-strung patients who cannot be controlled, patients who are otherwise intelligent and have sufficient means to carry out any type of treatment suggested.

It would seem the failures due to oversight of associated lesions, as brought out by both Doctor Kruse

and Doctor Speik, is gradually being diminished, particularly since fluoroscopic examination has been supplemented by careful study with a series of films which often show biliary and urinary calculi, hydro-nephrosis, focal infections in distant organs, etc. At the February meeting of the College of Physicians, Doctor Alvarez brought out in his paper on "Gastro-Intestinal Troubles That Now Go Undiagnosed" just how difficult this is. Out of five hundred consecutive cases with gastro-intestinal symptoms it was shown by extensive tests, operations, and postmortem findings that only forty-two had duodenal ulcer and six gastric ulcer, yet if the textbooks on the subject are to be believed, more of them should have been ulcers.

The roentgen ray also gives one a very good idea of the mechanical result of surgical interference. It is surprising how a new opening in the stomach wall that appeared to be larger than necessary at time of operation can close up or refuse to function; at times a roentgen-ray examination of a second operation may not reveal the cause of this failure to function. Repeated roentgen-ray examinations, as suggested by Doctor Speik, to note progress of treatment are important.

As a roentgenologist, looking at the matter from the side lines, it would seem that Doctor Kruse's requirement of rigid adherence to medical management as outlined in his paper promises the greatest measure of success.



ROLAND CUMMINGS, M. D. (523 West Sixth Street, Los Angeles).—The almost universal error in treating peptic ulcer is the lack of time taken to produce the cure. This disease is an ulceration of an organ that cannot be put at rest. Tuberculosis is the ulceration of an organ that cannot be put at rest. Tuberculosis was not properly treated until physicians learned that the patient must continue his cure for two years after all symptoms and active signs had disappeared.

The same condition applies to peptic ulcer. Unless the patient continues his cure six to eighteen months after being symptom free, there will be a recurrence. The length of time to continue the cure depends upon the extent of ulceration.

There are many different diets recommended, but they have two common factors: (1) Lessening of acidity. (2) Rapid emptying of the stomach.

Most diets are accompanied by frequent feedings, which prevent so much pylorospasm.

There is much discussion about the use of alkalis, many physicians believing they have little if any part in the treatment of ulcer. I would feel quite lost without them, but have been able to theorize only as to their effects. I am impressed that they lessen the emptying time of the stomach as well as neutralize acid. The following prescription has served me best:

Rx: Bismuthi subnitratiss
Magnesii usta et levis, aa 1 oz.
Sodii bicarb., 4 oz.
Sig. 1 dram six times daily in water.

Inasmuch as constipation is fatal to the cure of ulcer, this prescription is especially good, as the magnesia keeps the bowels free, the amount being adjusted to meet the need. I am impressed that there is something more in these alkali that assist in a cure than merely neutralization of acids and hastened emptying time, as I have seen definite benefit where acidity was very low. What this beneficial factor is, I cannot say.

The treatment of uncomplicated duodenal ulcer is very simple and should never require surgery. With gastric ulcer there is a very different story. Excision of the ulcer should be resorted to if it is at all deep.

THE KIDNEY FUNCTION IN PEMPHIGUS*

By SAMUEL AYRES, JR., M. D.
Los Angeles

A REVIEW of case histories of patients suffering with pemphigus, as recorded in hospital files and in medical literature, impresses one with the incompleteness of the observations. As a rule the histories are vague and the physical examinations are all too brief. Laboratory records usually include routine urine and blood examinations, occasionally bacteriological studies of the blebs and of the blood, and some blood chemistry studies. In view of the deep obscurity surrounding the etiology of this disease, together with its usual fatal termination, it is surprising that more complete statistical findings have not been recorded.

Six years ago the author had under his care a patient with pemphigus who began to develop edema of the ankles and albumin in the urine while receiving injections of neoarsphenamin. A renal function test showed an output of only five per cent phenolsulphonephthalein in two hours. Since then five additional cases of pemphigus have been observed in all of whom the 'phthalein output has been low. No mention is made of kidney function determinations in any of the available dermatological texts and a perusal of the literature and of local hospital records has been almost equally disappointing.

McCaskey¹ reported a case of pemphigus vulgaris which he believed to be due to renal insufficiency in whom the 'phthalein output was 37 per cent and 38 per cent in two hours on two separate tests. Grindon² records a 'phthalein output of 47 per cent in two hours in one of his cases under tryparsamid therapy. In both of these cases the dye was presumably injected subcutaneously.

According to Max Kahn and Morris Kahn in Tice's "Practice of Medicine,"³ the excretion of phenolsulphonephthalein in normal individuals, when injected subcutaneously or intramuscularly, varies between 38 and 60 per cent at the end of the first hour, and 60 to 85 per cent at the end of two hours. When injected intravenously, 35 to 45 per cent of the dye is excreted in the first fifteen minutes, 50 to 65 per cent in the first half hour, and 63 to 80 per cent by the end of the first hour. According to these authors, it is immaterial, as far as the excretion of the drug is concerned, whether the urinary output is 50, 200, 400, or 500 cubic centimeters. The excretion of the dye is diminished or delayed in acute or chronic nephritis in proportion to the severity of the renal impairment.

TABULATION FROM EIGHT CASES

The following table illustrates the essential facts in regard to the 'phthalein output, the urinary findings and the blood chemistry in eight cases of pemphigus vulgaris of the acute or sub-

acute type. Of these patients two left the hospital while still suffering from pemphigus and their subsequent histories are unknown; one (Grindon's case) died of lobar pneumonia during a period of relative quiescence in her pemphigus; four died of pemphigus, and one case is still under observation but is critically ill. Four of these patients received three to six injections of tryparsamid, one to two grams each, with rapidly fatal terminations, the one under observation at the present has gone downhill rapidly under tryparsamid, with a steady decrease in kidney function; one patient (Grindon's) improved under ten doses of tryparsamid, only to relapse; one patient (McCaskey's) was given arsenic, but the method of administration was not specified; one patient was given four doses of neoarsphenamin 0.45 to 0.9 gram, four doses of iron cacodylate five cubic centimeters (one grain) each, and eighteen doses of coagulen, with a fatal termination; one patient developed a transitory arsenical rash after a single dose of 0.6 gram neoarsphenamin.

From an examination of the chart it is clear that in these eight cases of pemphigus in which the kidney function was tested there was a consistent diminution in the output of phenolsulphonephthalein. The fact that the output was disproportionately low when the dye was given subcutaneously would suggest that the failure lay not only in the secreting power of the kidneys but also in the inability of the subcutaneous tissues to absorb the dye properly. The fact that in Case 8 the renal function steadily declined during the course of the disease, would suggest that the low 'phthalein output was a result of the disease or possibly a result of the treatment of the disease, rather than a cause of the disease. Another alternative would be the possibility that the low renal function and the cutaneous symptom complex known as pemphigus are both the result of some other causal factor such as an infection of the teeth or gums, or some other region.

For some reason, possibly merited, arsenic has attained some reputation in the treatment of pemphigus, although the author has yet to see a single case in which a permanent cure was established. Of the cases reported above, two gave a definite history of a preceding attack which cleared up under medical attention. Case 5 had an attack of "blisters on the abdomen and back" one year previously which cleared up in about four weeks under light treatments. Case 7 had an attack two years previously which lasted about six months and finally healed, although the exact nature of the treatment could not be determined. Yet both of these patients during their second attacks became rapidly worse under weekly injections of tryparsamid (four doses in one case and six in the other, of one to two grams each) and died in spite of all efforts.

In view of the marked impairment of the kidney function in these cases, one might legitimately ask if the arsenic may not do more harm than

* Chairman's address, Dermatology and Syphilology Section of the California Medical Association at the fifty-ninth annual session, Del Monte, April 28 to May 1, 1930.

TABLE 1.—Summary of Renal Function, Urine Examination and Blood Chemistry in Eight Cases of Pemphigus Vulgaris

Case	PHTHALEIN EXCRETION						URINE							BLOOD CHEMISTRY					
	Date	Subcutaneous		Intravenous		Date	Reaction	Specific Gravity	Albumin	Sugar	Acetone+Diabetic	Casts	Miscellaneous	Date	Nonprotein Nitrogen	Creatinine	Uric Acid	Sugar	Chlorids
		One hour	Total Two hours	Half hour	Total One hour														
1 (McC.) Age 39	Not Stated	....	37%	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	540
	....	25%	47%	....	....	....	....	....	Negative	....	....	....	....	....	Normal	....	....	Normal	....
3 (B. F.) Age 40	July 24	....	5%	....	....	July 1	....	....	+	0	+	....	....	....	....	....	....	....	....
	....	....	....	....	....	July 23	Acid	....	0	0	0	0	R. B. C. W. B. C.	....	....	....	....	....	....
4 (E. S.) Age 40	March 24	0	35.7%	....	....	Mar. 24	Acid	1012	++	0	0	0	occ. W. B. C.	Mar. 25	32	....	....	....	....
	Dec. 12	....	35%	....	....	Nov. 15	....	....	0	0	0	0	0	Nov. 22	29	1 3	....	118	....
5 (F.) Age 45+	Jan. 17	....	....	30%	45%	Jan. 16	Acid	1024	0	0	0	0	W. B. C.	Jan. 24	36	1 4	....	....	....
	Feb. 13	....	....	5%	55%	Feb. 13	Acid	1020	0	0	....	....	occ. W. B. C.	Feb. 13	52	1 6	....	133	....
6 (V.) Age 50+	Nov. 14	....	....	25%	45%	Nov. 26	....	1027	++++	0	+	+	B. W. C. Mucous	Dec. 3	29	....	....	....	....
	Dec. 11	....	28% (Dec. 12)	38%	52%	Feb. 20	Acid	1622	+	+	....	+	W. B. C.	Dec. 10	....	....	....	114	446
7 (F. C.) Age 35+	Mar. 24	....	....	75%	92%	April 10	Acid	1006	+++	0	0	0	W. B. C.	Mar. 30	26	1 3	2 3	100	....
	Mar. 27 Mar. 28	60%	67.5%	35%	60%	....	....	....	....	....	....	....	....	April 16	28	1 3	2 6	95	....
8 (A.) Age 40+	April 16	10%	20%	....	....	....	....	....	....	....	....	....	....	April 18	....	....	....	....	460
	....	....	....	....	....	....	....	....	....	....	....	....	....	April 20	....	....	(Fluid from blebs.)	....	590

good. Surely one would hesitate in pushing arsenic or mercury in a syphilitic patient who showed a 'phthalein output of only 20 or 30 per cent.

In regard to the urine and blood chemistry examinations, it will be seen that evidences of kidney impairment are not so well marked. According to Hawk⁴ the creatinin normally present in the blood varies between one and two milligrams per 100 cubic centimeters. All of the patients in whom creatinin determinations were made were within normal limits. Nonprotein nitrogen values above 30 milligrams per 100 cubic centimeters are considered pathological; three patients in whom this test was made gave abnormally high figures and two were at the upper limit of normal. The blood sugar was moderately elevated in two patients out of six tested, which finding might be due to impaired renal function. In three patients in whom the blood chlorides were tested, the values were low, the normal being about 650 milligrams per 100 cubic centimeters. This would suggest a possible retention of the chlorids in the tissues, especially in the case of McCaskey's patient, who had been fed thirty grams of NaCl during the preceding three days. Urbach⁵ has reported an instance of sodium chlorid retention with decreased chlorid output in the urine. The chlorid metabolism in pemphigus might justify further study. In Case 8 the chlorid content of the blebs was 130 milligrams per 100 cubic centimeters more than the chlorid content of the blood.

Another interesting phase of the pemphigus problem is the question of liver involvement. Case 5 gave a history of chronic gall-bladder trouble for eight years preceding the onset of pemphigus, with frequent attacks of dizziness, vomiting and pain in the right side; this was confirmed roentgenologically. Case 7, after detailed questioning, admitted previous gastro-intestinal upsets with an attack of jaundice several years ago. Another patient, Mrs. R. F. (White Memorial Hospital, No. 5102), not reported in this series because kidney studies were not made, revealed at autopsy a liver with large rounded margins showing marked fatty degeneration. The gall bladder was negative and the kidneys showed cloudy swelling. This patient had entered the hospital for gastro-intestinal study nine months previously; sores in the mouth had just recently appeared at this time. There had been a history of epigastric distress and vomiting, together with constipation, over a period of fifteen years. A diagnosis of chronic gastritis was made. Mr. B. T. (Los Angeles General Hospital, No. 12364), with no entries in the history indicating gastro-intestinal pathology, showed at autopsy "slight diffuse fatty infiltration" of the liver and a gall stone measuring 1.5 by 1 centimeter. The other organs were reported as negative. Mr. P. F. C. (Los Angeles General Hospital, No. 2110114) had developed pemphigus one month prior to entry, had had edema of the ankles for two months, and had been constipated for many years; he had had malaria in his youth. The pemphigus

pursued a rapidly fatal course in spite of injections of iron and arsenic. Autopsy revealed "marked fatty changes" in the liver which had a nutmeg appearance, also chronic diffuse nephritis.

COMMENT

It is hoped that these few random remarks will serve as a stimulus to a more detailed study of the most serious disease with which the dermatologist comes in contact. The fact that the disease is relatively uncommon makes it all the more imperative that all possible information be assembled in each individual case, for it is only by such means that a rational therapy will be developed. Foci of infection, not only of the teeth, but also of the sinuses, tonsils, gall bladder, prostate, etc., deserve more consideration. A more rigid examination of the bacterial flora found in the frequently diseased gums and the teeth of pemphigus patients might yield some valuable clues as to etiology. The possibility that the cutaneous manifestations and the damaged kidneys of pemphigus are merely the toxic effects of relatively common mouth bacteria, such as streptococci or Vincent's organisms, is worthy of further study.

TREATMENT

In the matter of treatment, several points which would appear obvious in other conditions are often neglected in pemphigus.

1. Eradicate if possible all foci of infection.
2. Treat infection wherever found with measures as specific as it is possible to obtain.
3. Remember that pemphigus lesions involving large areas of the body surface are comparable to extensive burns with considerable fluid loss by exudation and should be treated along similar lines by copious fluid intake (intravenous, hypodermically, or rectally where swallowing is difficult) and sedatives sufficient to prevent undue nerve shock from pain. Also adequate warmth should be maintained.
4. A careful study of the kidney function should be made and no drug should be administered to patients in which the kidneys are already badly damaged.

SUMMARY

1. Eight cases of pemphigus are presented in which kidney function tests were made.
2. One hundred per cent of these eight cases showed decreased excretion of phenosulphonethalein. The 'phthalein output was proportionally lower when administered subcutaneously, as compared with the intravenous route.
3. One case which showed a normal kidney function early in the disease displayed a steady decline in 'phthalein output as the disease advanced.
4. Five cases of pemphigus are cited in which the clinical history or the autopsy examination revealed pathology in the liver or gall bladder.
5. Therapeutic suggestions are offered among which the administration of arsenic is to be used with the greatest caution if at all in cases of pemphigus showing a low 'phthalein output.

2007 Wilshire Boulevard.

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INTRAORAL CANCER AND ITS TREATMENT*

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AND

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ONE of the most difficult problems with which the physician is confronted is the recognition and treatment of intraoral cancer. In such an accessible place as the mouth, where lesions can be easily seen and felt, it seems that their recognition, especially their early recognition, would be relatively easy; but such is not the case. Too frequently the patient fails to consult anyone until he has already reached a hopeless state. Occasionally, however, he does consult a medical adviser who fails to realize the seriousness of the disease from which he suffers. Clinically this recognition is difficult, for the mouth is the seat of many pyogenic and pathologic processes which usually complicate the cancerous disease. This very complication is in itself of serious import, for it brings about earlier extension through the dilated lymphatics into the regional lymph nodes.

Although we are at sea as to any specific cause of cancer, we believe that susceptibility and irritation play a very decided part. The history of most patients suggests that some degree of trauma, mild in nature, is often the precipitating cause. Jagged, irregular and infected teeth are frequently found in apposition to the growth¹ or to the ulcer. Now and then patients tell us that the first thing they remember is that they have on many occasions bitten themselves at the point of disease. Ill-fitting plates, which are too movable or too tight, have been the starting point of a growth on the gums. At first this irritation may manifest itself as a symptomless leucoplakia which gradually gets worse, until its very extent drives the victim to seek aid. Smoking is looked upon as an irritant in men, but whether this alone can be blamed is questionable. It will be interesting to observe whether the increasing number of women smokers will augment the incidence of cancer intraorally.

SYPHILIS AND INTRAORAL CANCER

Syphilis has been listed as a forerunner of cancer. In the Cancer Hospital at London the

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statement is made that 93 per cent of all their tongue cases are associated with syphilis. Other observers do not give figures nearly as high, but this teaching is so universally accepted that many individuals are treated months and months for lues before malignancy is suspected. We all agree that syphilis should be definitely ruled out, preferably by history or by the Wassermann test, and if doubt still exists, by a therapeutic test. If the latter is chosen and the patient is treated intensively for three or four weeks without definite improvement, then we may be reasonably certain that syphilis is not the cause of the lesion. However, the question of syphilis is of greater importance as a complicating factor in prognosis. It has been our observation that all neoplastic conditions associated with syphilis are exceedingly malignant, and in the majority of patients the neoplasm runs its course to a fatal termination despite the type of treatment instituted. Most individuals falling in this class, whom we have observed, are hopeless when they apply for treatment. Ewing, whose wide experience leads him to speak with authority, says that when the physician is confronted with these diseases in symbiosis, he should treat the cancer to the exclusion of the lues. In other words, if the patient recovers from his cancer, he can be treated for lues later.

BIOPSY

Though most cases of intraoral malignancy are recognized clinically, especially in the advanced stages of the disease, the absolute diagnosis must rest on biopsy. The opinion of medical men seems to be divided on this point, some arguing that it leads to a dissemination of the disease; but others, such as Judd and Regaud, say that in the early, small lesion it is advisable to excise all or a portion to get a correct diagnosis so that the proper treatment may be instituted afterward. In the ulcerating case, which is already sloughing and in which small portions of tissue are constantly being broken off, there is little danger of dissemination attached to a biopsy; on the other hand, there is always a potential danger in the early lesion. If a specimen is absolutely necessary, its removal by the method that Morgan has described is safe. This consists of using the high frequency undampened bipolar current. The specimen cutter is a loop of wire which cuts and seals, and when it has reached the depth one wishes it is pulled back, extracting a piece of tissue sufficiently large for microscopic study.

METHODS IN DIFFERENT CLINICS

Relative to the methods of treating intraoral cancer, there has been and is a divergence of opinion. Originally all cases were treated surgically, and although there were many cures there were a great many failures. During the last few years some of the most brilliant minds, representing the surgical, pathologic and radiologic viewpoints, have presented their ideas, and to them we owe a debt, as the present trend is a crystallization of the opinions of many groups of workers rather than those of any one individual.

At the Mayo Clinic it is customary to excise

the lesion if possible, and to give preoperative irradiation to the regional nodes, after which a block dissection is done. The gland-bearing areas are again thoroughly radiated, if the pathologist reports the presence of malignancy. In other centers it is customary to rely on radiation alone, or combined with electrocoagulation, to eradicate the disease. Thus, at the Memorial Hospital the original lesion is treated by radium implants. The gland-bearing areas receive irradiation from high voltage x-ray and radium, and then a block dissection is carried out. At the Curie Institute, Regaud follows the same technique but does a block dissection of the neck before irradiating the neck. At the Westminster Hospital in London, radium implants have replaced surgery of the tongue; while Harmer, at St. Bartholomew's, relies almost entirely on electrocoagulation, though at times he uses radium implants first and then follows by electrothermic surgery.

A glance at Table 1 will show that, with the exception of Judd and New, the leading observers are using radium element or radon implants for the primary lesion. There is considerable agreement on this. The statistics available to show the effect of treatment are not of long enough standing to give much accurate information, except those of Regaud (see Table 2), who has shown that in 43.8 per cent of all cancers of the tongue the local lesion is curable, but in only 23.8 per cent is there a complete cure, since 20

per cent of the patients, though cured locally, die of a secondary adenopathy.

INTRAOURAL TREATMENT METHODS

In so small a space, as the mouth, where there is such a variety of structures in contact with varying degrees of sepsis, no one type of technique can be used in all cases. The technique which we have followed will be given according to location. We feel that it is essential to render certain preliminary treatment prior to instituting any active attack on the lesion. All forms of sepsis due to teeth must be eliminated by thorough dental cleansing and extraction. Likewise, plates must be permanently removed. Mild mouth washes give much relief. While this clean-up is being carried out, radiation in the form of high voltage x-ray or radium packs is given to the gland-bearing areas on each side of the neck. As a result of this preliminary treatment, enlarged glands which are frequently only the seat of septic absorption may disappear, while the original lesion in the mouth diminishes as the accompanying inflammatory zone shrinks.

When the primary lesion is on the tongue, it is attacked by circumvallation with implants of radon, filtered through gold or platinum. Whether one relies on implants which are permanent or removable apparently makes little difference, but if there seems to be much sepsis or if the lesion has been badly inflamed, the removable platinum point is used as there is less chance for abscess

TABLE 1.—Tongue Cancer Technique

Place	Primary Lesion	Secondaries if Operable	Secondaries Inoperable
Mayo Clinic. Judd & New	a. Operable: Excision with cautery. b. Inoperable: Surgical diathermy and insertion of radon im- plants.	a. Preoperative radiation. b. Block dissection. c. Postoperative radiation if glands show carcinoma. d. Grade (4) radiation only.	H. V. x-ray or radium pack.
Memorial Hospital Quick.	Implants radon gold filtered.	a. Glands not palpable: H. V. x-ray and radium pack. b. Glands palpable: H. V. x-ray and radium. Dissection neck and implants in wound.	a. H. V. x-ray and ra- dium pack b. Exposure of glands and insertion of im- plants.
Philadelphia General. Dorrance and Morgan	Implants radon gold filtered.	a. H. V. x-ray to saturation or radium pack—large amount—short time.	a. H. V. x-ray. b. Radium packs.
Curie Institute. Regaud	Implants radium needles platinum filter.	a. Block dissection (Crile) b. Radium collar—if glands show car- cinoma.	Radium collar — small amount of radium— platinum filter—over a long period.
Westminster Hospital, London. Cade	Implants radium needles platinum filter.	a. Block dissection (Crile) one month after primary. b. Radium collar—entire neck.	Radium collar — massive dose. 25,000 to 30,000 mgh.
Manchester Infirmary. Birkett	Implants radium needles platinum filter.	a. Movable glands: Block dissection and implants in wound.	Platinum filtered im- plants into fixed glands.
St. Bartholomew, London. Harmer	Implants radium needles platinum filter plus endotherm excision.	a. Glands not palpable: Radium collar. b. Glands palpable: Dissection plus radium collar.	Radium collar or filtered implants.
Soiland Clinic	Implants radon gold or plat- inum filtered.	a. H. V. x-ray or radium pack. b. Electrocoagulation of glands plus radium pack.	H. V. x-ray or radium pack.
Radiumhemmet	Electrocoagulation followed by radium needles. 1 millimeter lead filter.	a. Radium element pack. 3 millimeters lead filter—25 to 40,000 mgh.—plus gold and platinum im- plants.	(a) Same as operable.

TABLE 2.—Effect of Radium Implants on Local Tongue Lesions (Regaud) 1920-1928				
Location of Lesion	Complete Cure	Local Cure Died of Adenopathy	Total Local Cure	Palliation Only
Anterodorsal	26.4%	24.8%	51.2%	48.8%
Postdorsal	19.5%	17.0%	36.5%	63.4%
Sublingual	22.0%	11.6%	33.6%	66.4%
Total tongue	23.8%	20.0%	43.8%	56.1%

formation resulting from the presence of a foreign body, such as took place in one of our cases. Following the general rule of using 2.5 millicuries per cubic centimeter of tissue, a reaction is set up that will destroy the malignant tissue without doing much damage to the normal structures. In case of doubt, it is better to overradiate rather than to underirradiate, since the chances for a good result are better from the primary application than from subsequent sessions. Birkett's work illustrates this point. When using the same technique, he found that 22.8 per cent of his patients were well in whom he left his needles less than seven days; while 40.8 per cent were well when he left them longer than seven days.

Pfahler and Berven recently described their results in treating these cases by large amounts of radium at a distance, filtered through the equivalent of 4 millimeters of lead, giving a total of 25 to 40 gram hours over the neck. This is supplemented by surface applications of radium, filtered through 3 millimeters of lead, applied over the local lesion. Under this regimen the immediate results have been remarkable, but the time elapsed since using this technique is too short to give a final report.

Lesions of the cheek may be treated by implants, but usually surface radiation, by gamma rays, will clear up the majority of the cases. If this is insufficient, we resort to electrocoagulation. Those involving the alveolar border and palate are treated with difficulty with implants, since the proximity of bony structures sets up a periostitis which is very annoying and painful. Here again surface applications may be better.

The tonsil is often the seat of malignancy. When a carcinoma is present, interstitial radiation, as used in the tongue, gives the best results but, if the lesion is a sarcoma or the transitional type of carcinoma described by Quick and Ewing, surface radiation gives excellent results. These lesions are extremely sensitive to radiation and disappear quickly.

Broders has shown that all malignancies are not equally sensitive to radiation. Those that fail to respond, and which are not completely eliminated, are treated by electrosurgery. Though the actual cautery has cured many cases, we feel that electrocoagulation offers a better chance. Where the cheek, alveolar border and palate is involved so that there is bony adherence, this method is of distinct advantage. It not only destroys the malig-

nant cell, but it eradicates the associated infection which makes for resistance to radiation therapy. What to do with the regional glands is a moot question. Theoretically a block dissection, as carried out by Regaud, should be the choice of procedure, but the chances for cure after actual involvement of the glands is so small, and the mortality is so high because of the poor condition of the patients, that it is not practiced as often as formerly.

END RESULTS

Duffy's study at the Memorial Hospital has shown that, in 194 cases of carcinoma of the tongue, 60.3 per cent did not develop nodes at any time. In seventy-seven cases of cancer of the floor of the mouth and fifty-six cases of cancer of the tonsil, 70.1 per cent and 71.4 per cent respectively had no nodes at any time. Quick feels that if a routine dissection of the neck is carried out, many needless operations are the result, with no better chances for cure. For this reason he has adopted a conservative course in treating the neck by irradiation where no nodes are palpable, but if nodes are palpable and the case is operable, a block dissection is done after a thorough irradiation with both high voltage x-ray and radium packs. Whether this viewpoint is the correct one is hard to say, but it does seem that we are justified in not advising a block dissection until definite indications exist.

In our work, where we palpate one or two movable glands and when they have not disappeared under irradiation, it is our procedure to expose the gland, destroy it by coagulation in situ, and then to apply a radium pack. The drawback is that the resulting wound heals very slowly. However, our impression is that in the few patients in whom we have done this, the shock from the operation is small and the immediate results are favorable. On the other hand, if the glands are fixed, external irradiation alone is given with no attempt at surgical exposure.

The records of the Soiland Clinic show that 185 patients with intraoral cancer, exclusive of those with leukoplakia, have applied for treatment since 1922. In the majority of the cases the lesion was on the tongue and, of these, the males predominated four to one. Sixty-three of the patients were in a hopeless condition when they sought advice and treatment. During the early years the treatment was entirely surface radiation, with very little filter, so the caustic beta rays were used. This gave only palliative results. Then

TABLE 3.—Cervical Lymph Nodes—Mouth Cases (Duffy)				
Lesion	Cases Admitted	No Nodes Through-out	Percentage with no Nodes at any Time	Deaths in Cases with no Nodes but Died of Primary
Ca. Tongue	194	117	60.3	31.6%
Ca. Floor	77	54	70.1	31.5%
Ca. Tonsil	56	40	71.4	55.0%

came the use of filtered surface irradiation with a better outlook. When glass implants were introduced, our enthusiasm increased, and now that interstitial irradiation from gold and platinum seeds is used, we feel that the patients with this disease have a fair chance for recovery. At any rate the primary lesion practically always disappears. The prognosis of the case is dependent on the secondaries. Radiation when successful produces little deformity and does not interfere with function if the disease is not too extensive. Where radiation is not sufficient, especially in the radio-resistant lesion, electrocoagulation and electrosurgery may be used with good effect.

CONCLUSIONS

1. All cases of intraoral malignancy should be given the benefit of radiation therapy. In the advanced lesion it is always a good palliation, and in the early lesion it gives results on a par with more radical procedures.

2. Those patients who are operable and who have not shown sufficient response to irradiation should be cared for by electrosurgery.

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DISCUSSION

H. J. ULLMANN, M. D. (Cottage Hospital, Santa Barbara).—The authors have covered the subject so well that very little is left for discussion except to concur with their views. For those who are doing extensive cancer work Table 1 is of great interest, as it gives one a chance to compare technique at other centers with one's own methods. The intraoral cancers that we see at Santa Barbara are nearly all so far advanced that we can hope for little more than palliative results. There are two reasons for this, and this applies to the country at large as well as the Santa Barbara district. The first is the slowness of many patients to have an examination when they first detect symptoms in the mouth, and the other is the failure of the examining physician to recognize early cancer. I believe that at the present time it is as important to teach physicians to recognize early cancer as it is to educate the public to have early examinations.

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LAURENCE TAUSSIG, M. D. (384 Post Street, San Francisco).—This review of the present status of the treatment of intraoral malignancy is of distinct value. I believe that the pernicious belief in the danger of biopsy should be discarded. Properly done, the danger is negligible, while it may often be the means of saving life. In our clinic at the University of California we favor the implantation of gold seeds of radon for the primary lesion, followed in about two weeks by electrocoagulation. Meanwhile the cervical glands receive x-ray therapy and if palpable nodes are present, when the oral wound is about healed, a block dissection is done. In our experience, neoplasms of the soft palate and tonsil have responded better to treatment than those of the cheek and tongue. It is amazing the amount of palliation that patients with very extensive lesions sometimes obtain from conservative radiation. Overradiation is the pitfall to be avoided, for instead of a distinctly good palliative result the pain and misery may be greatly increased.

✱

LYELL C. KINNEY, M. D. (1831 Fourth Street, San Diego).—The authors' emphasis on biopsy is very important. The early localized lesion presents a good prognosis under prompt treatment, but too often the chance of cure is sacrificed by a few weeks of "watchful waiting" before a diagnosis is reached. This procrastination by the patient or his first adviser is

responsible for much of the fatality of intraoral carcinoma. The hope of increased success is not from further refinements of technique, but from early diagnosis and immediate destruction of the lesion. Every suspicious intraoral lesion should have a biopsy when it is first seen.

We wish to commend the treatment program outlined in the paper. The preliminary high voltage x-ray with careful attention to dental and oral sepsis we have found to greatly facilitate the radium treatment and to diminish the severity of the reaction.

The treatment of intraoral cancer and of the cervical glands is always a major surgical problem. The splendid review prepared by the authors shows that it is best handled by close coöperation between the surgeon and the radiologist.

✱

DOCTOR MELAND (Closing).—The paper and the able discussion emphasizes the fact that the treatment of intraoral cancer is in a transitory phase. No hard and fast rules can be laid down as to what shall be done in any case, but the general trend of opinion is toward interstitial radiation and electrosurgery. A common mistake that one makes is mentioned by Doctor Taussig, where we fail to distinguish between radical and conservative radiation in hopeless conditions. Overtreatment in a hopelessly advanced case with its pain and discomfort does more harm than good and must be continually guarded against.

Despite our educational efforts, too many hopeless cases are presenting themselves for treatment. The pessimistic attitude on the part of laymen and practitioners alike is partly to blame, but with increasing experience and better results, it is hoped that this may be overcome.

RADICAL TREATMENT OF CANCER OF THE BLADDER*

By ROBERT C. COFFEY, M. D.
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IT would be presumption on my part to attempt to enlighten an audience of urologists concerning the present-day status of any branch of urology. I take it that Young's monumental work, which has recently come out, represents the best that is known on the subject of cancer of the bladder. In this book he has reported 534 bladder tumors. Of these, seventy-two, or 13.5 per cent, are classed as benign papilloma, by which we may infer that no evidence of malignancy can be discovered microscopically. Ninety-six cases, or 18 per cent, are classified as malignant papilloma, meaning a papilloma having the appearance of a benign papilloma but containing unmistakable microscopic evidence of malignancy without infiltration of the bladder wall. Eighty-eight cases, or 16.5 per cent, are classified as papillary carcinoma, meaning a malignant papilloma which is infiltrating the wall of the bladder. Two hundred and fifty-six cases, or 47 per cent, are classified as infiltrating carcinoma, which means that the growth is infiltrating the bladder wall without definite papillomatous manifestations. Twenty-two tumors are not included in this classification. Thus, it will be seen that 81.5 per cent of bladder tumors are actually malignant when they come to Young's clinic for treatment.

* Read before the Urology Section of the California Medical Association at the fifty-eighth annual session at Coronado, May 6-9, 1929.

YOUNG'S TREATMENT CLASSIFICATION

Young has classified treatment under four heads: fulguration, radium, electrocautery, careful radical surgery. He estimates that the present-day curability of bladder tumors by the wise application of all these agencies would be about as follows: Benign papilloma, 95 per cent; malignant papilloma, 75 per cent; papillary carcinoma, 50 per cent; and infiltrating carcinoma, 25 per cent. Therefore, according to Young's figures, it may be assumed that 40 to 50 per cent of bladder tumors may be cured by present-day methods. I am not prepared to discuss intelligently the meaning or accuracy of these results and, therefore, will limit my remarks entirely to the other 50 to 60 per cent for which no cure exists today.

RADICAL TREATMENT

I think it is safe to say that there is but one more step to take and that is, radical treatment of cancer of the bladder. By the term, "radical treatment" is meant the eradication of cancer of the bladder with a ruthless disregard for the bladder as a future reservoir for urine. Before this step can be taken, it is necessary that we shall provide a workable substitute for the bladder. The rectum is the only practical substitute, as it is the only available hollow viscus controlled by an efficient sphincter muscle. To utilize the rectum for this purpose has been a very puzzling problem. While Gray's anatomy of thirty years ago, in giving the course of the ureter, says that it traverses the space between the muscular and mucous coats of the bladder for nearly an inch before it empties into the bladder, surgeons and experimenters failed to grasp the significance of this arrangement, for by this arrangement a perfect valve is produced, and without a valve it is impossible to transmit fluid from an area of low pressure to one of higher pressure. As a consequence, all methods of direct transplantation of the ureter into the bowel ended in disaster to the kidney and frequently to the patient.

VALVE ACTION FOR TRANSPLANTED URETERS

The practical application was discovered by accident in a set of experiments in which it was necessary to transplant the bile duct to a new location in the intestine. The fact that at a second operation the bile duct was dilated led to the discovery that there must be a difference in pressure in the intestine and in the duct. After transplanting the bile ducts by the method which nature has used in the implantation of all of the ducts, namely, to the space between the mucosa and muscularis, it was found that the bile duct did not dilate. This plan was then applied to the ureter with the result that in 1910 I was able to exhibit to the surgical section of the American Medical Association at St. Louis five undamaged dog's kidneys with undilated ureters. This was the first time that it had been possible for anyone to make such an exhibit before any society. Dr. Charles Mayo was chairman of the surgical section when the presentation was made and was the first to apply the method to the human being. Since that time, Doctor Mayo and Doctor Lower

of Cleveland have had a considerable number of cases in which transplantation of the ureters has been done, one ureter at a time. I have had a smaller number by this original technique. Nearly one hundred other cases have been reported by different doctors scattered throughout the country. The ultimate results in these cases indicate that transplantation of the ureter into the bowel by the submucous technique is a feasible operation. Unfortunately, this operation, when done without the use of the tubes, has made it necessary to transplant the two ureters at separate operations. Radical removal of the bladder is a very serious operation in itself. Thus, the ordeal of three major operations does not seem justifiable in a case of cancer of the bladder in which the outcome, at best, is not especially promising. After long experimentation in removing the obstacles and dangers of the operation, we are now able to transplant two ureters simultaneously with far less danger to the patient than we could transplant one ureter by the former method.

FACTORS UNDERLYING SURGICAL TECHNIQUE

The completed technique for bilateral transplantation of the ureters by the tube technique was given in *Surgery, Gynecology, and Obstetrics*, November, 1928. The fundamental principle of the original operation, which is valve action, must be retained in any successful operation for transplantation of the ureters. The fundamental point in the technique is that the ureter must be made to run immediately under the mucosa for a distance before it opens into the lumen of the bowel. There are two other important features to remember:

A. The kidneys are vital organs, and life can last only a short time without their function. Therefore the operation must be so arranged as to interrupt renal function as little as possible. To provide against the serious interruption of renal function during the days immediately after operation, three plans have been used:

1. Transplantation of one ureter at a time through separate incisions, the operations being from ten days to two weeks apart (C. H. Mayo).
2. Unilateral or bilateral transplantation of ureters preceded some time before by bilateral nephrostomy (Hinman).
3. The tube or catheter technique in which catheters of sufficient size are used to transfer the fluid through the operative field during convalescence.

By the first plan, two major abdominal operations are necessary. By the second plan, two loin incisions are made at one time, followed later by an abdominal operation. By the third plan, only one operation is required and only one abdominal incision. The third plan is, therefore, to be preferred when practical.

B. The next consideration is that the operation involves the opening of the peritoneal cavity and also the opening of the retroperitoneal space, in the presence of which the large intestine, or cecspool of the body, must be opened. Infection emanating from the site of transplantation is

often fatal, and is always detrimental to the final result. Therefore every effort to sterilize the field and produce an aseptic operation should be made.

VITAL POINTS IN OPERATIVE PROCEDURE

The vital points of the operation are as follows:

1. A valve must be produced. This is done by running the ureter beneath the loose mucous membrane for a distance before it enters the intestinal lumen.

2. Flow from each kidney must be uninterrupted. This is accomplished by introducing large size ureteral catheters (No. 12 preferable) well up the ureter toward the kidney pelvis.

3. An anchorage for fastening the ureter to the catheter is made by slipping a snugly fitting segment of a rubber tube about three-quarter inch in length over the catheter. As the catheter is slipped into the ureter, the split end of the ureter is tied to the cuff by placing a linen thread around both.

4. Ascending infection along the lumen of the ureter is prevented:

(a) By placing a ligature tightly around the ureter above the point where the ureter is anchored.

(b) By causing the ends of the catheter to discharge in a bottle containing 1:1000 bichlorid solution.

5. The bowel is cleansed:

(a) By isolating the lower segment of the bowel with a rubber-covered stomach clamp.

(b) Irrigation of the isolated segment with sterile water from above through a No. 13 Lewishon needle attached to an irrigator followed by one per cent mercurochrome solution.

(c) By packing the rectum with dry gauze.

In this way the field is made relatively free from gross infection.

6. By holding the segment of the intestine in which the incision is to be made between four traction loops, the incision is made and the ureter implanted and held in place by sutures with a minimum of manipulation.

7. By drawing the external flap of parietal peritoneum across to the intestine and suturing it there over the intestinal incision in which is buried the ureter, a retroperitoneal space is formed. By draining this retroperitoneal space with wicks and quarantining the operative area by a rubber tissue wall, retroperitoneal infection and peritonitis has been practically eliminated.

RESULTS IN THIRTEEN CASES

I have now, within a little more than a year, performed the operation of bilateral transplantation of the ureters in thirteen cases without operative mortality and without demonstrable evidence of permanent injury to any one of the twenty-six kidneys. In one instance the ureter pulled out and left a urinary fistula, but there has been no evidence of damage to the kidney. Having solved this fundamental problem of ureteral transplantation, we may now return to the origi-

nal problem of radical treatment of cancer of the bladder.

COMMENTS ON SURGICAL AND RADIUM PROCEDURES

With the ureters delivering the urine into the rectum, the bladder becomes a useless organ which may be removed or destroyed without interfering in any way with the normal body functions. From the standpoint of treating carcinoma, such a bladder presents a striking analogy to the uterus in that we have a choice between radical removal by surgery or destructive doses of radium. Taking all cases of cancer of the cervix uteri, radium has become much more important than surgery. Impartial authorities believe that by comparing a hundred cases of operable cancer of the cervix treated by radical surgery with an equal number of similar cases treated by radium alone, there would be very little difference in the ultimate results. A great advantage on the side of radium, however, is that its application carries no mortality, while surgery carries a mortality of from 5 to 20 per cent. Furthermore, much more than 50 per cent of cases of carcinoma of the cervix coming to the surgeon are inoperable. A certain percentage of these inoperable cases may be cured by radium. A much larger per cent of such cases, when treated with radium, are relieved of a very offensive condition and made relatively comfortable, although not cured. These results are possible in the cervix, largely because radium may be applied directly in the center of the growth and used in destructive doses without seriously injuring surrounding organs. After the bladder has been abandoned as a reservoir for urine, the same principles will apply, with the added advantage that there are no adjacent vital organs which may be injured by destructive doses of radium. Therefore it is possible to use much larger doses of radium with impunity in such a bladder than in the uterus. This large dosage should bring better curative results.

TRIGONE SURGERY

Young states that approximately 75 per cent of all the tumors of the bladder are in the trigone or base. There are still other cases in the vesical neck, in the prostatic orifice, and in the immediately adjacent mucous membrane. Thus, probably 85 per cent of the tumors of the bladder are located in the relatively fixed portion of the bladder. This part of the bladder is the difficult part to remove. This is particularly true in the male in which some 80 per cent of all tumors of the bladder occur. On the other hand, this part of the bladder is most accessible for the application of massive doses of radium. Therefore it would seem that radical surgery is rarely justified for the treatment of this 85 per cent of cases in which tumors are located in the trigone, or base of the bladder, and the neck of the bladder. If a sufficient quantity of radium is not available, complete removal of the bladder can be performed by the technique of Albarrán which is so well described in Young's "Urology," but it will at once be seen that this is a very formidable operation, done by combined approach through the perineum and the

suprapubic space. Subtotal cystectomy in the male for carcinoma located in the movable contractile portion of the bladder should be ideal. In this way the remaining base of the bladder and the urethra could be treated, and even destroyed, with radium at the option of the operator, depending upon the case. Complete cystectomy in the female is by no means so difficult, and has been performed by me in one case following bilateral transplantation of the ureters with perfect results. However, for cancer of the base of the bladder in woman, even in operable cases, it may be possible that surgery may give no better results than destructive doses of radium, for in the female the base of the bladder may be treated through the anterior wall of the vagina as well as from the inside of the bladder. For cancer of the movable part of the bladder in the female, subtotal cystectomy, or even total cystectomy, should be the procedure of choice.

It must not be forgotten, however, that the application of radium requires just the same skill and knowledge of cancer as does the application of surgery if good results are to be obtained. Radium has not been successful in the treatment of cancer of the bladder for the reason that a destructive dose of radium so burns, destroys or distorts the bladder wall that it is no longer practical as a reservoir for urine. It is very important in the use of radium that it shall be placed exactly where it is to remain and that it must be held exactly in that place.

AUTHOR'S RADIUM PROCEDURES

Our plan of treatment of cancer of the bladder with radium is as follows:

One week after the transplantation of the ureters, the gauze wicks of the quarantine are removed. The large sheets of gutta-percha tissue are allowed to remain. Twelve days after the operation, two days before the ordinary time for the removal of the gutta percha, a catheter is inserted through the urethra, the bladder is distended with water, and the rubber tissue in the drainage wound is held upward. The end of a blunt Mayo scissors is pushed through the bladder wall, just above the pubes and spread until two fingers are admitted. The opening is further enlarged by stretching. Hemorrhage is much less than that following a clean-cut incision or cautery opening. The radium is screened and placed in the desired location and held in position by packing the bladder cavity with gauze. The radium is placed in different ways, according to the location of the growth. If the growth is small and is in the trigone, or base of the bladder, just back of the urethra, two 50 milligram tubes of radium carefully fitted over the growth and held in place for thirty-six hours should be sufficient. Each tube is screened with its brass container, one millimeter of lead and a covering of gauze which is made of the end of a folded gauze tape sponge. The gauze tape is left long to be used in drawing the radium out through the opening. The two tubes of radium thus screened are sewed together and then attached to the end of the catheter which

had been pushed through from below. Traction is now made from below on the catheter which draws the two tubes of screened radium down to near the urethral outlet. This is made taut by fastening the catheter to adhesive straps which bind the two thighs together. The bladder is now packed with gauze so as to firmly fix the radium directly over the growth. If the growth is quite extensive, two or three other tubes of radium are screened in a similar manner and arranged in different locations around the growth and held in position by the gauze packing which is made to fill the bladder entirely. The pain is relieved by ample doses of morphin. In this way as much as five or six thousand milligram hours of radium may be used in the bladder. Much more, if desired. This wound is left open and it communicates with the drainage sinus, so after the rubber tissue quarantine has been removed it is possible to make other applications of radium through this same wound. Time and experience must determine the relative importance of radium and surgery which may be made to include such destructive agencies as the cautery and electrocoagulation.

611 Lovejoy Street.

ROENTGEN DIAGNOSIS OF PULMONARY TUBERCULOSIS IN INFANTS AND CHILDREN*

By ROLLA G. KARSHNER, M. D.
Los Angeles

DISCUSSION by *William H. Sargent, M. D., Oakland; Henry E. Stafford, M. D., Oakland; Lloyd B. Dickey, M. D., San Francisco.*

THE following study is based on observations made at the Children's Hospital of Los Angeles on more than one hundred cases of pulmonary tuberculosis in infants and children which came to autopsy.

The conception of the disease processes which emphasizes the similarity in sequence of manifestations between tuberculosis and syphilis, each exhibiting a primary, secondary and late stage, is preferred. One then may outline the events which follow the entrance of the tubercle bacillus into the lung as follows. If the attack is massive the child is overcome by an acute caseous and rapidly fatal disease. If the invasion is mild, there results a primary lesion of small extent, situated anywhere in the lung, which usually goes on to cure by fibrosis or calcification. Coincident tuberculous adenopathy may remain latent or may manifest itself clinically some time after the primary focus has healed. Toward puberty, or more commonly in early adult life, late infection of the lungs may occur either from mobilization of tubercle bacilli in the bronchial nodes or by massive infection from without.

Pulmonary tuberculosis in infants and children may be classified according to the appearance and

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distribution of the infiltrations on the roentgenogram. The following classification covers our material at the Children's Hospital.

TABLE 1.—Classification

Roentgen Type	Stage of disease		
<i>Primary Tuberculosis:</i>			
Primary lesion.....	I		
Caseous pneumonia.....	I	II	
<i>Glandular Tuberculosis:</i>			
In infancy		II	
In childhood		II	
<i>Hilum Tuberculosis:</i>			
In infancy	I	II	
In childhood		II	
Recurrent pneumonia		II	
Basal distribution	I	II	III
<i>Miliary Tuberculosis:</i>			
Pulmonary		II	III
Accompanying tuberculous meningitis		II	III
<i>Adult Tuberculosis</i>		III	

PRIMARY TUBERCULOSIS

Focal Primary Lesion.—The initial lesion of tuberculosis is almost always undetected. Its small size renders its recognition by physical examination impossible and its symptoms are mistaken for those of the numerous respiratory or other infections. It is fortunate when such lesion is discovered while still active, for it usually heals rapidly. The roentgenogram will show a pneumonic infiltration of moderate extent which may occur in any lobe. It may be multiple. More frequently the healed remains of the primitive infiltration are detected, though in the greater number of cases it becomes invisible because of its size. Often it is represented only by a strand of fibrous tissue, generally in an upper lobe. Not infrequently the pleura in the region of the site of the initial lesion is involved, leaving a sharp linear shadow extending from hilum to periphery.

Caseous Pneumonia—Infantile Phthisis.—Before pathologic studies revealed the frequency of pulmonary infection in the early months of life, with increasing infection year by year, tuberculosis in infancy was regarded as almost invariably fatal. We now know that even in infancy an advanced tuberculous process may heal. The susceptibility, however, to massive infection is very great, and it may terminate in a most extensive caseous consolidation and necrosis of the lung. Whether this is the result of primary infection or is secondary cannot always be determined. Undoubtedly in some cases it results from rupture of a caseous lymph node into a bronchus. The process is usually rapidly fatal.

GLANDULAR TUBERCULOSIS

Tuberculosis of the Intrathoracic Lymph Nodes. In the diagnosis of this condition the roentgenogram is indispensable. The diseased lymph nodes, in all their variety of size, shape and position, are projected as dense shadows extending beyond the mediastinum into the pulmonary field. Lateral views of the chest are essential.

In infants tuberculous adenopathy is unique, the enlargement is relatively greater than in chil-

dren, and the glandular shadow often assumes the dimensions of a neoplasm.

Tuberculous hilum glands may cause all the phenomena commonly associated with a foreign body in the air passages, from the slightest lateral shifting of the heart shadow to well marked air-trapping, or complete occlusion of a bronchus.

In children the problem of diagnosis of tuberculous hilum glands becomes more difficult. It can rarely be stated from the roentgenogram whether disease of the intrathoracic lymph nodes is the cause of a child's symptoms. There may be no correspondence between the size of the glands and the severity of clinical symptoms. Neither can enlargement of tuberculous nodes always be distinguished from moderate tumefaction of hyperplastic lymph nodes, particularly in the absence of caseation or calcification. The roentgenogram is valuable, however, in showing whether the infection is confined to the bronchial nodes, thereby differentiating a benign condition from a graver one of actual pulmonary disease. Repeated roentgenograms are of great value in studying progress. Absorption of the hilum gland shadows and increased calcification are indications of favorable progression. It is not believed that the diagnosis of hilum gland tuberculosis in children should be made from the roentgenograms alone. Careful coöperation with the clinician is essential to the greatest degree of accuracy.

HILUM TUBERCULOSIS

Hilum tuberculosis is a much more common form of the disease in early than in adult life. But for the roentgenogram it would usually be undiscovered. The process originates at the root of the lung and extends outward a variable distance.

In infants it consists of a cheesy tuberculosis of the lung root tissues, rapidly progressive, with a bad prognosis. The triangular shadow of ordinary infantile pneumonia has its base at the periphery, whereas in hilum tuberculosis it is at the root. In our experience it was nearly always right-sided.

A second type of hilum tuberculosis occurs in childhood, commonest around the age of six, a relatively mild infection with a good prognosis.

Recurrent Hilum Pneumonia of Tuberculous Origin—Perifocal Tuberculosis—Paratuberculosis—Epituberculosis.—This is an interesting process characterized by the recurrence of symptoms of pulmonary infection at intervals of weeks or months during which time there may be varying degrees of cough, fever and, at times, a few physical signs. It affects both infants and children. Pathologically the process is an exudative one about a tuberculous lymph node, usually not due to a dissemination of tubercle bacilli, but to a cellular reaction around the central focus containing the infecting organism. The bacillus is not found in the infiltrated zone, the tissues being saturated with serum and lymphocytes, thus accounting for the complete disappearance of shadows by absorption. The process is, consequently, benign and always accompanied by an

intense skin reaction to tuberculin. Not all hilum pneumonias of the recurrent type are entirely free from tubercle bacilli, as not infrequently they leave in their wake fibrous changes, increased vascularity, or a small calcified area to mark the center of the previous process.

Tuberculosis of the lower lobes without coincident involvement of the apices is a more frequent happening in early than in adult life. It is due to a spreading of an inflammatory process from the hilum. In appearance it resembles an ordinary basal pneumonia, except that its upper border is sharply delimited from the unaffected lung above.

MILIARY TUBERCULOSIS

This may be a terminal phenomenon in any type of tuberculosis. In rare instances it is purely pulmonary, the infiltrations not regular in distribution, and there may be caseation or fibrosis. This type occurs secondary to an older lesion in the lung and may develop after the age of infancy. The first symptoms frequently follow closely upon measles or whooping-cough. The disease occasionally heals, though it is usually fatal.

Miliary tuberculosis of infants most frequently accompanies tuberculous meningitis. The picture is that of a generalized peppering of both lungs with miliary proliferative lesions. There is usually no evidence of older pulmonary lesions, but there may be telltale hilum glandular shadows. The tubercles may be conglomerate, grouped, and surrounded by an exudative zone.

ADULT FORMS

As puberty is approached, tendency to chronicity becomes manifest. Lesions are more indurated and the apical regions more susceptible. Caseation vies with fibrosis. The result is the multiform picture of fibrocaseous tuberculosis with cavitation and lobular pneumonia, characteristic of the adult. We have not seen this type of disease prior to the tenth year of age. It is rare before the twelfth year.

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DISCUSSION

WILLIAM H. SARGENT, M. D. (1624 Franklin Street, Oakland).—Doctor Karshner has given us a very interesting discussion of tuberculosis of the lungs of infants and children.

I cannot pass this opportunity of urging more such interchange of papers between the various sections as we have had here today, but especially do I wish to bespeak such interchange for radiology, which is so closely linked to all branches of medicine. It is an inspiration to us, it creates a much better understanding, and it tends to better service to our patients.

My conception of the pathologic processes following tuberculous infection in the lungs of infants and children is probably the same as Doctor Karshner's. However, I have been somewhat differently impressed with certain points. The cases studied in the out-patient department of the Baby Hospital of Oakland have been followed for a considerable length of time, and most of the patients have recovered, or are recovering. No effort has been made to differentiate these cases under any particular scheme of classification.

Analyzing the films taken of these patients it has been noticed that certain similar changes appear to be present in all, varying only in degree, not in char-

acter. In practically all the cases it would seem that there are evidences of a certain fundamental reaction of the tissues following tuberculous infection in the lungs of children. This reaction may vary greatly in degree of intensity and be very confusing or difficult to interpret, but it always seems to be present to some extent. According to Krause, a sensitization takes place following the initial infection, and thereafter the reaction is allergic in character. Apparently, the disease begins as a primary infection in the parenchyma of the lung, usually near the pleura. Surrounding this area, a pneumonic process or allergic reaction soon develops. This may vary from a slight reaction at the site of the primary focus to involvement of an entire lung. Soon after the primary infection, there is extension through the lymphatics to the regional lymph nodes in the hilum. Evidences of involvement of the hilum glands may vary as greatly as the evidences of involvement in the lung parenchyma. This entire process has been called the primary complex of Wrenche. It appears to constitute the fundamental reaction of the tissues to the tuberculous infection, varying only in degree. If the pneumonic or allergic process is very extensive, we may call it tuberculous pneumonia. Rapid caseation, breaking down and cavitation may occur, or more or less complete resolution. If this process in the lungs has disappeared and only the glandular involvement remains, we are prone to call the condition hilum tuberculosis.

This conception of the pathologic processes seems to fit more readily into the x-ray findings than would an attempt to otherwise classify them. Classifications, in reality, appear to be only different phases of the above process.

Serial films in the anteroposterior and diagonal directions are indispensable in the diagnosis of these conditions. Even then, there will be many cases where most careful correlation of all the findings will be necessary to arrive at a correct conclusion.

Through the helpful coöperation of Doctor Martin and others of the staff of the Baby Hospital, it has been possible to arrive at a reasonably definite conclusion in many cases. From our joint study of these patients, three significant points appear to be most important in the diagnosis: the x-ray findings, the history, and the tuberculin test.

✽

HENRY E. STAFFORD, M. D. (242 Moss Avenue, Oakland).—Doctor Karshner's correlation between x-ray findings and autopsy material is as instructive as it is infrequent. I do not feel qualified to discuss either the roentgenologic or pathologic findings. However, three clinical points were reemphasized to me by Doctor Karshner's paper:

1. The primary introduction of bacilli of tuberculosis often occurs under the guise of a mild upper respiratory infection. Consequently any involvement of the respiratory tract which does not clear within a reasonable time demands study, with tuberculosis in mind.

2. The frequency with which an old tuberculous focus is lighted up by one of the so-called childhood diseases, particularly pertussis and scarlet fever, justifies routine examination of all children one to two months following recovery from such diseases.

3. Changes in x-ray chest findings in tuberculosis occur more rapidly than is usually appreciated. As a rule this is due to allergic reaction in the lung parenchyma from a second infection or a fresh invasion by the original organism. To be unfamiliar with this marked shadowing and its rapid clearing may lead us to give a grave prognosis that is unjustified.

✽

LLOYD B. DICKEY, M. D. (Stanford Medical School, San Francisco).—Doctor Karshner is fortunate in being able to correlate so closely his roentgenologic studies with the anatomic findings. Others of us could learn much more that would help us, had we

this opportunity and also the diligence to follow cases as Doctor Karshner has done. It is at the necropsy mainly that many of our earlier impressions about the pathologic conditions in juvenile tuberculosis are being corrected. While the roentgenogram is probably the most important single item in diagnosing clinical pulmonary tuberculosis in childhood, in certain cases it is of no value except when correlated with history, physical examination, and tuberculin test. It is known that the hilar shadows during convalescence from pertussis and measles, and in cases of chronic bronchitis associated with infection of the accessory nasal sinuses (sinobronchitis) often cannot be told from those seen in tuberculosis of the hilar lymph nodes.

Doctor Karshner mentions the interesting linear shadows frequently seen extending from hilum to periphery. In a series of roentgenograms recently observed by Doctor Garland and myself at Stanford, we found these shadows to be present in 51 per cent of 327 cases in which the children were known to be tuberculous, and also in 48 per cent of fifty cases in children reacting negatively to large doses of tuberculin. In the first group the linear shadows were sometimes close to the initial lesion, sometimes distant, and often no primary lesion could be demonstrated when these shadows were present.

COLON RESECTION*

By ERNST GEHRELS, M. D.
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DISCUSSION by Robert C. Coffey, M. D., Portland, Oregon;
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IN colon resection the left side of the large intestine requires different surgical management from the right side. The one-stage operation for the right side of the colon, namely, the cecum and hepatic flexure, has generally been accepted as the best method, the ileum being planted into the remaining transverse colon. The left side of the colon presents a much more difficult problem. The two-stage operation for the left side of the colon was adopted by Paul in England and von Mikulicz in Germany. Their reason for this choice was the insecurity of colon anastomosis.

TWO-STAGE OPERATION FOR LEFT SIDE OF COLON

First Stage.—(a) The bowel is delivered outside the abdominal wall. (b) The bowel is usually resected a few days later so as to form a double-barreled artificial anus.

Second Stage.—Artificial anus is closed. Until recently, the majority of surgeons managed colon resections in this manner. Lately, however, an increasing number of surgeons prefer a three stage operation for all cases of cancers of the left side of the colon, both in ileus and in non-obstructive conditions.

THREE-STAGE OPERATION FOR LEFT SIDE OF COLON

First Stage.—An exploratory laparotomy is performed. If the case proves to be an operable cancer some type of cecostomy or colostomy is done.

Second Stage.—(Main operation)—Bowel resection and immediate end-to-end anastomosis. Sometimes in nonobstructive cases, the first and

second stages of this procedure are combined. A complete primary operation with a safety cecostomy is performed.

Third Stage.—Closure of preliminary cecostomy or colostomy. Rarely does a spontaneous closure of a cecostomy or colostomy occur. Spontaneous closure could hardly be expected, as this operation is done to keep all fecal contents from the left side of the colon.

The question of choice between one, two or three-stage operations must be considered.

To undergo three operations when one might suffice, is naturally a hardship for the patient. Surgeons generally acknowledge the one-stage operation to be of greater risk to the patient's life. For this reason the two or three-stage operation is preferred. The one-stage operation, however, is still frequently done by well-known surgeons, as by Moynihan in England.

Personally, I am opposed to the one-stage operation. At the present time I favor either the two or three-stage operation, as do the majority of French and American surgeons.

In Germany, at the 1926 Surgical Congress, the problem of colon resection was widely discussed. Several German surgeons showed a marked preference for the one-stage operation in nonobstructive cases. In the Mayo Clinic, the one-stage operation of the left side of the colon is rarely done. In 1924, the Mayo Clinic reports showed the Mikulicz procedure to have been used in 183 cases with a mortality of 9 per cent. Judging from the latest publications, a modified three-stage operation, with preliminary cecostomy or colostomy of the transverse colon is being frequently performed.

MIKULICZ PROCEDURE IN COLON SURGERY

It may be timely to review the entire problem and to determine the place of the Mikulicz procedure in colon surgery. As far as mortality is concerned, the Mikulicz procedure has the unquestioned advantage over every other method. The following statistics of the Mikulicz operations show up better than the best statistics with other procedures, for instance, the latest statistics of Rankin with a mortality of 12 per cent.

Surgeons	Cases	Operative Mortality Per Cent
Mikulicz	34	12
Mayo	183	9.6
Cruet	38	5.3
Quenu	74	8

The criticisms of the Mikulicz operation are largely based on the following:

Insufficient removal of the bowel;

Insufficient removal of the mesentery and the glands in the mesentery;

Implantation of cancer into the abdominal wound;

The Mikulicz operation is not sufficiently radical.

To avoid these dangers, it is necessary to do the first steps of the Mikulicz operation in one day and not several days apart. We excise the bowel immediately, at least two inches away from

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the tumor on each side, using the cautery over crushing clamps, which remain on each bowel opening for twenty-four to forty-eight hours. If we wait several days before excising the gut, retraction of the bowel occurs and the resection may take place too close to the tumor. Implantation may also result.

If immediate emptying of the bowel be desirable, a Paul tube is tied into the upper or both openings. The danger of peritonitis is negligible. F. Rankin has reported one case in which the upper bowel end slipped back and caused peritonitis. The danger of retraction can be avoided by sufficient loosening of the extraperitonized bowel.

In this procedure, the mesentery with its glands is immediately resected just as radically as in a one-stage operation or a three-stage operation. There is no reason why we should not mobilize the bowel and cut the mesentery to the same extent in a Mikulicz operation as in a one, two or three-stage operation. If done in this manner, the Mikulicz operation is not an incomplete operation. As far as permanent cures of cancer are concerned, the Mikulicz operation is not inferior to any other procedure. This fact has been demonstrated by large Continental experience.

The unpopularity of the Mikulicz operation has mainly been due to the difficulties in closing the double-barreled colostomy. As one well-known surgeon has put it: "The Mikulicz procedure may be safe, but it is slow and disagreeable."

The original procedure has two weak points:

1. The abolishing of the spur by the unsurgical procedure of the crushing clamp. This has often led to peritonitis and to secondary stenosis or ileus, to say nothing of the pain involved and the occasional hemorrhage.
2. The closure of the fecal fistula by an extraperitoneal plastic has often been unsuccessful, necessitating a second closure.

TECHNIQUE OF CLOSING THE ARTIFICIAL ANUS

The two weak points above outlined can be mastered by the technique described below. This technique, which was used in twenty-six

TABLE 1.—Usefulness of the Mikulicz Method Under Different Pathological Conditions

Condition	Mikulicz Operation	Reasons
Volvulus of cecum or sigmoid with gangrene.	Only possible method.	
Phlegmonous colitis, (most commonly of cecum).	Often indicated.	Bad condition of patient requires short procedure.
Irreducible intussusception.	Often indicated.	Bad condition of patient requires short procedure.
Diverticulitis.	Best procedure.	Perforation into bladder, (common complication of diverticulitis), etc.
Megacolon.	Best procedure.	Colon difficult to empty by cecostomy.

cases in Payr's Clinic, Leipzig, Germany, was published by me in the *Deutsches Archiv. fuer Klinische Chirurgie* in 1921.

The procedure I recommend avoids the crushing of the spur and closes the artificial anus in one stage, three to six weeks after the main operation. This allows sufficient time for the inflammatory edema of the peritoneum and intestines to subside.

The skin incision is carried around the double-barreled anus. The two edges are sutured to cover the colostomy openings. After changing gloves, the succeeding layers of the abdominal wall, fascia, muscle and preperitoneal fat are amply dissected. It is important to dissect the scar tissue of the preperitoneal fat extensively until loose preperitoneal fat is exposed all around. Only after this has been done, do we detach the two bowel ends from the parietal peritoneum, dissecting the intra-abdominal adhesions under the guidance of the left forefinger. We do not hesitate to open the abdominal cavity whenever it is necessary in order to loosen the two bowel ends so completely that an end to end union can be made without any tension. Increasing experience shows the danger of peritonitis to be small.

We have very little trouble with the spur. In the first place, we do not artificially establish a spur at the time of the first operation by parallel fixation. The short spur that is present disappears to a great extent after the two bowel ends have been detached from the abdominal wall, the intestine sinks back and the spur has disappeared. If there should be a spur formation remaining, it is only necessary to dissect a short distance between the two bowel ends and resect this part of the bowel wall. The union of the bowel is done with interrupted stitches, using silk for the outer layer. In this procedure, the only danger of leakage is at the anterior suture line. The danger is met by sewing the anterior suture line into the peritoneal wall, which is left open at this point. The abdominal wall is sutured in layers, leaving an opening for a rubber dam which goes down towards the suture line.

This whole technique may appear much more dangerous than the former extraperitoneal procedure. On the contrary, it has proved to be surprisingly safe. It can be done under local anesthesia.

As I have stated previously, I published from Payr's Clinic, twenty-six cases of artificial anus which had been closed by this technique. Sixteen more cases from the same clinic have been reported since, with no death, making forty-two cases with only one death. Only in three cases in the beginning of the series did a fecal fistula develop, which, however, closed spontaneously. This procedure has made the closure of an artificial anus in one sitting a reliable procedure.

It is easy to understand why this procedure is associated with so little danger:

In the first place, some adhesions are always left surrounding the operative area and reform very quickly postoperatively.

In the second place, the resistance of the peritoneum and abdominal wall against infection seems to be increased at this time, about four to six weeks after the main operation. It is surprising to see the abdominal wall unite by primary union in almost all cases.

In the third place, should leakage of the suture line occur, it will be in front, and a fecal fistula will result without general peritonitis.

This procedure is neither original nor new. Many surgeons are closing the artificial anus in the same way. In the textbooks and surgical publications on the Mikulicz procedure, the crushing clamp is still advocated. The fact that the type of procedure I have described is not only safe but considerably shorter, is at present not well enough known. Formerly the duration of the Mikulicz method averaged at least three months. Our procedure shortens the time to six weeks. I might describe this procedure as being midway between an entirely extraperitoneal and an entirely intraperitoneal one. It is often necessary to open the peritoneum all around. In five of our patients the peritoneal cavity was not opened at all. The main requirement is the same as it is in all attempts at closing a fistula at any point in the body, namely: to loosen the affected parts abundantly before attempting to sew them together.

COMPARISON OF ONE, TWO AND THREE-STAGE PROCEDURES

My experience does not accord with those surgeons who advocate a one-stage operation. In the one-stage operations, I have lost two out of four patients. Each time I have felt that I might have saved the patient had I resected in two stages.

In a collection of statistics of 136 cases of one-stage operation of the left side of the colon published by F. Nordmann, there was a mortality of 30 per cent. In my opinion this mortality is too high.

In comparing the advantages of the Mikulicz operation with the three-stage operations, the following points have to be considered:

First.—If a preliminary cecostomy is done blindly from a small right side incision without exploration, the case may prove to be inoperable later and there will be the disadvantage of a fecal fistula on the right side. Accordingly every operation, unless in the presence of acute obstruction, should begin with a wide incision and exploration. This makes the preliminary operation a fairly extensive one in the three-stage operation.

Second.—A cecostomy is not reliable for preparing the left side of the colon for the main operation. A cecostomy with a small catheter, as is sometimes recommended, will not suffice at all to empty the left-sided colon and the transverse colon, which after a cecostomy are often filled with hard fecal lumps. F. Rankin and Jones of Boston recommend the use of a half-inch tube for the cecostomy. In cases of severe obstruction, this is insufficient to empty the left side of the

TABLE 2.—Usefulness of Mikulicz Procedure in Cancer in Various Locations of the Colon

Site of Cancer	Mikulicz Operation	Reasons
Transverse colon.	Advisable.	Vascular supply of transverse colon unreliable.
Splenic flexure. Descending colon.	Advisable. Advisable.	Operation usually difficult and long. Transverse colon sometimes hard to empty by cecostomy.
Upper sigmoid.	Advisable.	The suturing of the descending colon to the lower sigmoid is disagreeable, because descending colon has large posterior peritoneal defect.
Lower sigmoid.	Advisable.	Pelvic colon can be mobilized.

colon. Not long ago, I had an experience of this kind. In spite of the preliminary cecostomy, I found the left-sided colon still distended. Doctor Jones and other colon surgeons record this same experience. When we do the intestinal anastomosis in the Mikulicz method, the left-sided bowel is in a condition of complete collapse, and in perfect condition for suturing.

Third.—In the second stage of a Mikulicz operation, the parts to be united are free of any tension. Their blood supply is absolutely assured. In the three-stage operation, the bowel anastomosis is done after extensive cutting of the mesentery. In these cases, we know that the blood supply is uncertain. Especially in a stout individual with a fat mesentery, is it hard to be certain of the blood supply of the parts.

Fourth.—In the Mikulicz method, the entire procedure is divided into two nearly equal parts. In the three-stage operation, the second stage is a very extensive one; especially if the case be complicated by adhesions of the tumor to the small intestine, the bladder, the uterus, etc., requiring a resection of these parts. In these cases we are glad to put off the intestinal anastomosis until the peritoneum has had time to repair the extensive trauma.

Fifth.—The Mikulicz procedure, as I have described it, requires less time in the hospital and less expense to the patient than the three-stage operation.

The resection, with preliminary cecostomy, amounts to a three-stage operation. A cecostomy large enough to keep the left colon free from fecal matter, rarely closes spontaneously. A third operation is required for its closure. One of the arguments that may be given in favor of the three-stage operation is that it permits the employment of the so-called "aseptic technique" of colon anastomosis. The best "aseptic technique" will break down and cause leakage if the blood supply of the parts is insufficient. At present, the "aseptic technique" offers no inducement to abandon the Mikulicz procedure. The main argument in favor of the three-stage operation is the protection that the cecostomy affords to the suture line. In spite of this protection, it is not always possible to avoid leakage. The cause of leakage is just as

much a question of proper blood supply as it is of fecal tension. The safety of the colon suture in the Mikulicz method would be hard to surpass. In my opinion, the Mikulicz operation offers a safer union of the large bowel than any other method.

Three great factors make for the safety of the Mikulicz method:

1. The complete collapse of the bowel;
2. The lack of tension;
3. Assurance of perfect blood supply, and
4. (Incidentally.) The extraperitoneal operation.

MIKULICZ PROCEDURE IN ACUTE ILEUS

For acute ileus, Mikulicz abandoned the extraperitonization procedure. In these cases he did a three-stage operation, beginning with a colostomy. This was before the time of x-ray localization. Nowadays a barium enema before operation allows us to localize an obstructing tumor of the large intestine.

If a long-looped sigmoid with an obstruction at the highest point of the loop is demonstrable, I think it permissible occasionally to extraperitonize the loop and immediately establish the double-barreled anus with two Paul tubes. We always empty the colon before sewing the bowel into the peritoneum. In this way the ileus is more rapidly relieved than by a cecostomy.

SUMMARY

For the reasons I have outlined, I am doing a Mikulicz operation in the majority of cases. It is a mistake to enforce the Mikulicz operation in every case. If in opening the abdomen we find

1. A large growth with infection of the bowel wall and adjacent tissues, or
2. A growth associated with advanced obstruction, or
3. The patient in bad condition,

even the first stage of a Mikulicz operation may be too much for the patient's endurance. Under such circumstances, it is better to prepare the patient for the main operation by a preliminary cecostomy or colostomy, which I establish in order to divert the entire feces from the left side of the colon. The following step may be either a complete operation of bowel resection and anastomosis or the first stage of a Mikulicz operation in complicated cases.

The favorite locations for the Mikulicz operation are the sigmoid and the transverse colon. For the splenic flexure and especially the descending colon, it is sometimes better judgment to do a three-stage operation. It is best to approach these cases without a preconceived procedure in mind, and after proper exploration, to decide on whatever form of operation is indicated. Most of us are inclined to grow partial to one method. However excellent, one method does not fit every case. Certain cases of early malignancy may even permit of a complete one-stage operation. In such cases, I always add a small cecostomy or ileostomy as a safety measure.

In my opinion, the two-stage operation of Mikulicz deserves a dominating place in colon surgery. I recommend abandoning the crushing clamp and to do a resection of the artificial anus in the manner I have described. I feel sure you will like the Mikulicz procedure much better when done in this manner. I trust that Tables 1 and 2 may prove helpful.

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DISCUSSION

ROBERT C. COFFEY, M. D. (611 Lovejoy Street, Portland, Oregon).—Concerning the importance of the Mikulicz operation, I am entirely in accord with Doctor Gehrels. It is, of course, ideal to do an immediate excision of the sigmoid or left-sided colon with direct end-to-end anastomosis. But, idealism in intestinal surgery is the most fatal of all sentiments, and no matter how much experience a given operator may have had or how skilled he may become he will have a greater mortality in doing ideal resections of the colon than he would if he used the Mikulicz principle. I think there is no doubt that the Mikulicz principle is the most important single contribution that has been made on the surgery of the large intestine.

I entirely agree with Doctor Gehrels as to the method of performing the first part of the Mikulicz operation. I appreciate that the splendid method which Doctor Gehrels has shown for closing the colostomy is entirely practical, but I do believe that it is entirely unnecessary to open the abdomen for the purpose of closing a colostomy wound.

In earlier years, in operating for appendicitis, when the operation was done very late and consisted of opening an abscess, it was not uncommon to have extensive fecal fistulae. At that time I published an article on "Remote or Indirect Subperitoneal Drainage in the Extraperitoneal Closure of Persistent Fecal Fistulae" in *Annals of Surgery*, June 1907. If a colostomy is made properly, it may be closed by this method with practically no danger at all. It is about as follows: An incision is made which extends from about two to three inches above and an equal distance below the fistula and is made to surround the fistula. The first incision goes through the skin and fat down to the aponeurosis. This layer of fat and skin is dissected off the aponeurosis for a distance of at least two inches on all sides. The aponeurosis and the muscle are similarly separated and similarly lifted so that there are spaces of at least two inches between all the layers of the abdominal wall, which extend in all directions. After this separation has taken place the fistula stands up like a crater coming off from its attachment to the peritoneum. It is trimmed off, turned in and sutured, and dropped back with the peritoneum. Silkworm sutures are then passed through the skin, fat, muscle, and aponeurosis and left untied. The various layers are then sutured individually, after which silkworm sutures are tied over a roll of gauze or through small segments of tubing. By this means, all the layers are held firmly together while the two-inch spaces all around the line of suture permit of drainage of all these planes to the tubes which are placed at the two ends of the incision down to the peritoneum. If the fistula is in the abdominal wall, where all the layers may be freely separated, this operation is almost 100 per cent successful. It has been described in a number of books and has been given particularly prominent space in the fourth edition of Moynihan's "Abdominal Operations."



FOSTER K. COLLINS, M. D. (1930 Wilshire Boulevard, Los Angeles).—The Mikulicz method of resection is a life-saving measure in conditions where an immediate, more prolonged operation might fail. It is particularly indicated and, I think, should usually be limited to those cases where a short portion of intestine is found so damaged that it cannot temporarily

be returned safely to the abdomen, and to the occasional small scirrhous carcinoma easily brought outside the abdomen. I feel we are much indebted to Doctor Gehrels for his timely and very comprehensive contribution on this method.

I agree that when cancer of the transverse or descending colon is found, whether totally or partially obstructing, an immediate resection is rarely indicated. In nearly all of my recent resections of any portion of the transverse or descending colon, I have first done a cecostomy. This not only prepares the patient by permitting the acute symptoms to subside, but acts as a vent for gases, preventing distention and a possible blow-out at the suture line after resection. A cecostomy also has the advantage of being well to the right, leaving a clean uncontaminated left abdominal field for a safe radical resection in usually about ten days.

In opening an abdomen for suspected cancer beyond the ascending colon, a left outer rectus incision will permit inspection and exploration to determine the location and involvement. If it is a case for resection and the involved portion can safely be replaced in the abdomen, my usual practice is to decide against a Mikulicz. I then insert my hand over to the right lower abdomen and determine where a knuckle of cecum can best be made protrude through an incision farthest to the right above the ileac crest. The incision through the abdominal wall is no longer than the knuckle of cecum requires for an ample protrusion and opening. Absorbable sutures placed in the outer coats of the cecum, peritoneum and fascia, secure the knuckle. No sutures are placed in the skin and there is no later infection. If the distention is acute and symptoms urgent, a drainage tube can be at once purse-stringed into the cecum as soon as the left rectus incision has been closed and protected by vaselin gauze. The left abdominal wall can be thus left free from contamination for the later resection. Through a large drainage tube in the cecum the colon is gradually washed out with saline and there is no contamination of the cecostomy dressing for three or four days. When the tube loosens, an ample opening is made and drains the entire colon quite satisfactorily with irrigation. This cecostomy opening, in my experience, either closes of its own accord or can be closed with a few stitches when it is no longer required, without entering the abdomen.

Doctor Gehrels states one of the main objections to the Mikulicz operation in cancer has been that it might not be radical enough—that involved glands in the mesentery may not be removed. It has been my experience that, as the operation is usually performed, this is true and I think a more open procedure is indicated in cancer cases, if, when the abdomen is first opened, it is found the involved section of bowel can be temporarily replaced.

In a resection the all-important points are: removal of involved glands, prevention of impaired circulation at the suture line to avoid a blow-out from necrosis and provision to prevent distention.

After resection, I usually do an end-to-end anastomosis by my aseptic technique published in the *Annals of Surgery*, December 1922; but safeguard this suture line from a blow-out by invaginating it into the gut below for an inch or so, suturing the gut wall from below up over the suture line. A tube is inserted through the anal canal, and, guided by the hand in the abdomen, passed up beyond the anastomosis several inches. With both tube and the cecostomy functioning there is no dangerous distention and rarely even a temporary fecal fistula at the point of resection. No drainage is employed. The average hospital stay is from three to four weeks from the time the patient first entered.

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DOCTOR GEHRELS (Closing).—We all agree on one point, that a one-stage operation on the left side of the colon is rarely advisable. The choice rests between a Mikulicz operation and a three-stage opera-

tion as Doctor Collins outlined. To compare the advantages of these two methods has been the object of this paper. In order to do colon surgery most successfully, a familiarity with both methods and their advantages is necessary. The choice of method will have to be determined by the anatomical findings in each individual case. For the majority of cases, I have found the Mikulicz operation most satisfactory when done in the way I have outlined.

It pleases me to hear that Doctor Coffey, with his great experience in colon surgery, is well satisfied with the Mikulicz procedure.

My experience with the crushing of the spur and the extraperitoneal closure of the resulting fecal fistula in the second stage of the Mikulicz operation has been less fortunate than Doctor Coffey's. This was the reason for ceasing to crush the spur, and for adopting the procedure which was described.

DIVERTICULA OF THE URINARY BLADDER IN WOMEN*

REPORT OF CASES

By JAY J. CRANE, M. D.
Los Angeles

DISCUSSION by Herbert A. Rosenkranz, M. D., Los Angeles; George F. Schenck, M. D., Los Angeles; J. C. Negley, M. D., Los Angeles.

IN the United States only five cases of diverticula had been reported prior to 1906, and these were in men. Since the advent of our present-day cystoscopic and improved roentgen ray technique, diverticula have frequently been seen. There is scarcely a clinic that has not reported a large series of cases. These reports have been very complete and extensive. In fact, there has been so much written regarding diverticula that it is not necessary to dwell on the subject in detail. However, since diverticula in women are relatively rare, comprising about 5 per cent of all reported cases, the three cases here reported were thought to be of sufficient interest to merit mention.

In attempting to prove the etiology of diverticula much careful study has been done by urologists but their opinions are still divided. Thus some believe that all diverticula are congenital; many believe that they may be either congenital or acquired; while still others contend that they are always acquired. It is true that nearly all of the diverticula seen in men are associated with obstructive lesions at or below the bladder neck. This fact also holds true for women. The three cases of diverticula and one case of an incipient diverticulosis are here reported because of their unusual occurrence in women and because of the definite symptom complexes and pronounced pathological findings.

REPORT OF CASES

CASE 1.—Mrs. E. M., Case 281731, Los Angeles General Hospital. Age 41.

Complaint.—Came for relief of: (1) difficulty in urinating; (2) pain over bladder region; (3) sand in urine; (4) hematuria.

* Read before the Urology Section of the California Medical Association at the fifty-eighth annual session at Coronado, May 6-9, 1929.



Case 1.—Large multiple diverticula urinary bladder.

Examination.—Revealed an acute retention of urine due to a filiform stricture of the urethra. This was gradually dilated over a period of weeks until a cystoscope could be introduced into the bladder. A large diverticulum was found behind the right ureteral orifice and still another on the posterior bladder wall and another almost in the vault of the bladder. The largest diverticulum, which was situated behind the right ureteral orifice, did not drain freely. Some small particles of sand were washed out through the cystoscope.

Diagnosis.—Diverticula of the urinary bladder, due to strictures of urethra.

CASE 2.—Mrs. I. F. W. Case 40166 Los Angeles General Hospital. Age 81.

Complaint.—(1) Extreme frequency; (2) intense dysuria especially at close of urination; (3) senility. Symptoms have been progressively growing worse for the past six months until at the present time the patient can scarcely control urine.

Examination.—Large cystocele and procidentia of uterus.

Cystoscopic Examination.—On entrance, 200 cubic centimeters of residual urine was found in the bladder. At the time of cystoscopic examination 30 cubic centimeters residual urine was found after patient had been in bed for a few days. Her symptoms also improved with bed rest. There was a small caruncle at external meatus of urethra and a marked cystocele. The bladder mucosa was acutely inflamed, only slight trabeculations being seen. Behind the right ureteral orifice on the wall of the bladder was the mouth of a large diverticulum which would hold approximately 75 cubic centimeters of fluid. This seemed to empty completely when the patient would lie down.

Diagnosis.—Diverticulum of the urinary bladder, due to procidentia of the uterus and cystocele.

CASE 3.—Mrs. O. M. Case 39704, Los Angeles General Hospital. Age 38.

Complaint.—She was admitted to the hospital for relief of difficulty in urinating, fever, pain and swelling over lower part of abdomen.

Examination.—Revealed the absence of labia majora and external meatus urethra. Previous records disclosed that a few years previously the patient had had genital ulcers resembling tuberculosis and had had them cauterized with the actual cautery. A dimple in a mass of scar tissue was all that remained of the external urethral orifice.

Cystoscopic Examination.—Under spinal anesthesia a filiform was introduced. Later a small cystoscope was passed. A large, badly infected diverticulum was found on the left wall of the bladder. These findings were verified with a cystogram.

Diagnosis.—Diverticulum of the urinary bladder, due to stricture of urethra.

CASE 4.—Mrs. B. Case 21902, Hollywood Hospital. Age 69.

Symptoms.—Came for the relief of frequent painful urination and of constant desire to urinate, which she had endured for several years. When she developed a severe hematuria she sought relief.

Examination.—Revealed: (1) A procidentia of the uterus to such an extent that the cervix was protruding out of the vagina; (2) marked cystocele.

Cystoscopic Examination.—Revealed a minimum of 20 cubic centimeters of residual urine. The uterus was reduced before the cystoscope could be passed successfully. Bladder urine was bloody and contained many small blood clots. The mucosa was intensely inflamed. Two small diverticula openings were immediately noted, one on the posterior bladder wall and the other almost in the vault of the bladder. Trabeculation was general and well developed and many large cellules were also present, some of which were almost full-fledged diverticula. The bleeding was from the intensely inflamed mucosa.

Diagnosis.—Incipient diverticulosis of the urinary bladder, due to procidentia of uterus and cystocele.



Case 2.—Large diverticulum filled with sodium iodid, and ureteral catheter in diverticulum bladder filled with air.



Case 3.—Bladder filled with air and large diverticulum filled with sodium iodid.

COMMENT

Symptoms.—There was no definite symptom complex which would indicate that a diverticulum was present. I believe that bladder tenesmus as demonstrated by severe, excruciating pain during and just following urination, is the most common symptom. Especially is this true when the diverticulum does not empty freely. Some emphasis has been put upon the inability of a patient to completely empty the bladder at one sitting, thus requiring two or more successive micturitions. Patients with diverticula whom I have examined and who have experienced this symptom complex have had obstructive lesions at the bladder neck and I could not ascertain whether the symptoms were due to the obstruction or diverticula. Most diverticula are symptomless until infection occurs due to poor drainage in the diverticulum itself or at the bladder neck. Poor drainage inevitably ends in infection, not only of the diverticulum, but of the bladder as well, which itself also produces symptoms. Thus the symptoms of a diverticulum are similar to those of an infected bladder or those of a bladder neck obstruction where a stone is present. "In short the subjective symptoms of a poorly draining infected diverticulum especially in the presence of ammoniacal urine are not exceeded by advanced vesicle tuberculosis, carcinoma, or stone."¹ One patient came for the relief of hematuria as a major symptom. Two came chiefly because of difficulty in urinating, and in the fourth case, a mild incontinence was the most distressing symptom. Thus there are no symptoms so constant and accurate that the diagnosis of a diverticulum can be made without the cystoscope and roentgen ray.

Diagnosis.—Most diverticula are found during the process of a routine urological examination. This was true in our four cases in women. We were searching for the cause of their symptoms when the orifices of the diverticula were seen with the cystoscope. Cystoscopic examination will usually reveal the presence of a diverticulum, but it alone cannot tell the whole story. An opaque catheter curled in a diverticulum, a cystogram, and a contrast cystogram taken in more than one plane will give an accurate idea of the size, exact location, number and whether they are in a position to drain freely or not.

Treatment.—The consensus of opinion is to relieve the obstruction whether in the urethra or at the bladder neck, before or at the time of doing the diverticulectomy. This is essential if recurrence of the condition is to be avoided. However, excision of the diverticulum is not always necessary after the obstruction is relieved if it drains well. Pousson sutures the orifice of the diverticulum without excision of the sac. Chute and Pousson also enlarge the orifice, especially in cases that will drain. Young, Hinman, Howard, Lomer and Squier do a radical excision of the diverticulum in toto, as do MacGowan, Day and Rosenkranz.

2007 Wilshire Boulevard.

REFERENCE

1. Day and Martin: Diverticulum of Urinary Bladder, J. A. M. A., January 24, 1925, Vol. 34.

DISCUSSION

HERBERT A. ROSENKRANZ, M. D. (1024 W. P. Story Building, Los Angeles).—This is an excellent presentation of a series of rare cases. Doctor Crane has, for the first time in medical literature, emphasized procidentia and cystocele as a cause of diverticulum. The more frequent cystoscopy of cases of stubborn "bladder trouble" will, of course, reveal an ever-increasing number of diverticula.



Case 3.—Bladder and diverticulum, both filled with sodium iodid.



Case 4.—Incipient diverticulosis, urinary bladder.

As Doctor Crane has noted, we have achieved cures by peeling out very large diverticula, some of them larger than the bladder itself. Those situated at the base of the bladder cannot drain and become filled with a foul jelly-like pus. These must be drained suprapubically by a large Pezzer catheter in the diverticulum itself to relieve the patient of his dangerously toxic condition prior to diverticulectomy. In some cases however that present no line of cleavage, I enlarge the orifice in a stellate direction and apply the Percy cautery contacting pretty thoroughly to the mucosa of the diverticulum twice rapidly at low heat. About two years ago at the General Hospital I first applied this method with the result that when Doctor Negley cystoscoped the case several months later the diverticulum had disappeared with hardly a trace. I usually drain the diverticulum cavity laterally to the bladder and suture the orifice of the diverticulum. Although diverticula have occasionally been resected deeply so that a thick walled viscus is removed I consider this a dangerous procedure in view of the danger of injury to the rectum, peritoneum, ureters, large vessels and other organs.

My experience urges me to emphasize the advantage of suturing the circularly incised bladder at the neck of the diverticulum to the skin at the beginning of the operation in order to facilitate peeling out the diverticulum. The sponge forceps is ideal for grasping the edges of the diverticulum and should be adopted in place of the Allis clamps still featured in the textbooks.

The surgery of this condition is going to become of ever-increasing importance when more diagnoses are made and when the life-shortening complications of this condition are more widely appreciated.

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GEORGE F. SCHENCK, M.D. (511 Westlake Professional Building, Los Angeles).—Doctor Crane has presented an interesting series of cases that are sufficiently rare to warrant consideration. It is to be noted that two of his patients had strictures of the urethra, and two had marked cystoceles and procidentia. Urinary obstruction plus residual urine terminated in hypertrophy of the bladder musculature, and caused the appearance of trabeculations. The

diverticula are just a step further in the destructive processes of obstruction in the lower urinary tract.

Frequency, dysuria, hematuria, pyuria, and incontinence were the cardinal symptoms in all of his cases, as they are in 90 per cent of all urological cases. To the urologist each one of them is a signpost recommending a urological study for the purpose of making a diagnosis. The early recognition and treatment of urinary obstruction in the upper and lower urinary tracts has amply demonstrated the merits of urological study. For some unaccountable reason, the same symptoms in female patients do not maintain the same significance to many physicians. A thorough urological study will reveal a definite cause for their urinary disturbances, and offer treatment that is not empirical.

Doctor Crane has pointed out to us that diverticula occur in women, and the symptoms are precisely the same as they are in male patients. The etiological factor in 50 per cent of his cases was stricture of the urethra, which, contrary to general opinion, is relatively common in women. The other 50 per cent were caused by procidentia, and cystocele; and both exist to some degree in every multipara.

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J. C. NEGLEY, M.D. (Brack Shops Building, Los Angeles).—Doctor Crane has covered this subject in such a comprehensive manner that discussion is rendered difficult.

The problem of the treatment of diverticula in women is much less complicated than in men, because the latter have more anatomical or physiological reasons for developing diverticula. I agree with the writer that procidentia is a cause of diverticula, but with reluctance would accept cystocele alone as a cause of diverticula. If such were the case, surely more diverticula would have been reported in women.

Since these cases have marked tenesmus, severe, agonizing pain and marked reaction, following cystoscopy, the most gentle procedures should be adopted for their diagnosis. The procedure of coiling a rather stiff ureteral catheter in the diverticulum and allowing it to remain for all the subsequent moving about for x-rays, is unnecessary and pain-producing, and serves to lower the resistance of an already debilitated patient. Cystograms should not be repeated too many times, even if scientific knowledge is gained thereby. Only mild solutions, such as neosilvol, 15 per cent; argyrol, 20 per cent; campiodol, 12½ per cent; argo iodine, 2 per cent; and if sodium iodide is used, not over a 6 per cent solution is advisable.

Patients with diverticula are generally poor surgical risks and the more conservative methods for their relief are much to be preferred. Complicated and bizarre methods for resection of the diverticulum subject the patient to a long stay on the table, a protracted convalescence and in a large number of cases a lowering of bladder capacity to a marked degree.

Procedures for relief of obstruction, whether such be from urethral stricture or one of the many bladder neck or other conditions become primary in importance. Surgical procedures on the diverticulum are many and varied. Our preferences include the use of the cutting cautery on the most dependent margin surrounding the opening—a similar use of a Young's punch or the rongeur or resection of a wedge-shaped section, similar to the technique of trigonectomy for hypertrophied trigone. If any of the latter three are used, measures directed to the control of hemorrhage should be instituted including use of the Tollyson punch, or diathermy. If extensive resection is performed on a dependent margin of a diverticulum, interrupted sutures to control hemorrhage are always applied to the cut edges.

ANATOMICAL VARIATIONS OF ACCESSORY NASAL SINUSES*

By EDWIN S. BUDGE, M. D.
Los Angeles

DISCUSSION by C. Latimer Callander, M. D., San Francisco.

A TREATISE dealing with anatomy, of necessity is one that is not new. But since sinuses have such various ramifications, sizes, and wall limitations, it may be interesting to review the subject. A knowledge of the anatomical variations of the nasal accessory sinuses is necessary if the signs of complications, which show themselves through their bordering walls, are to be recognized and if proper drainage, which is the only hope of cure, is to be established.

FRONTAL SINUSES

The frontal sinuses may be entirely absent, or may be present only on one side, or may occur on both sides with one side overlapping the other either in front or behind. They may extend from the roof of the orbit to as much as forty millimeters into the spongiosum of the frontal plate. They may extend posteriorly over almost the entire roof of the orbit back to the lesser wing of the sphenoid, or the depth may be but a few millimeters. This is most important in selecting the operation of preference when it is necessary to establish surgical drainage. The shallow sinus makes operation hazardous by the intranasal route, for fear of coming into the anterior fossa of the brain, while the deep sinus makes any of the radical operations less favorable for a cure, and especially those which have been worked out to preserve facial contour. The larger the sinuses the thinner the walls and the more closely do such sinuses encroach upon vital structures. The posterior wall may be so thin that only a tissue-paper thickness of bone is between it and the brain cavity. The floor of the frontal sinus, which is the roof of the orbit, is equally as thin and in some cases a dehiscence in the bone is present. In these cases destruction of the lining membrane by disease or in the course of operation may result in eye complications.

Recently I have had two patients come to me only after the anterior wall, which is the plate of the frontal, was completely eroded; both reporting because of a prominence on the forehead, following a protracted period of headache. The prominence in one patient was in the center, and at operation it was discovered that both sinuses opened into this prominence. In the other patient the prominence was over the left sinus, but the left sinus extended thirty millimeters to the right of the median line, and was situated posterior to its fellow of the opposite side.

When at operation it is revealed that the posterior wall of the frontal is bulged far forward, it may be an overlapping of the sinus of the oppo-

site side posteriorly, or a bulla frontalis which is pushed up from the anterior ethmoids. The ostium of the frontal varies greatly in size and shape from the type which is very short and straight and which is easily entered, to one that is long, narrow and cork-screw in its course. The hiatus semilunaris may be very narrow as a result of an overhanging of the uncinate process or the pushing forward of the bulla ethmoidalis. In such cases it may be necessary to remove the uncinate or the bulla in order to probe the sinus. While the frontal more often opens into the hiatus, it may open into an adjacent anterior ethmoid cell or into the bulla, or the hiatus may end in a blind ethmoid cell. Ethmoid cells may open into the hiatus as well as the frontal, which not infrequently is the cause of difficulty in reëntering a frontal after it has once been probed successfully. In such cases a notation should be made upon the patient's history chart.

At the present time I have a patient who has two distinct ostia leading into a very large left frontal. X-ray has not shown any irregularity in the sinus, but I am able to wash from the sinus separate quantities of pus from the two openings.

In one of the slides photographed from an actual specimen, and which will be thrown upon the screen, the individual had three separate frontal cavities; the left cavity opening into the usual place, the middle cavity into an anterior ethmoid and then into the hiatus, and the right cavity opening directly into the right maxillary sinus.

MAXILLARY SINUSES

The walls of the maxillary sinuses may vary from the normal to an almost complete absence, a mere slit being present on one or both sides. In such cases both may be so small that the canine fossa is so receding that considerable deformity of facial contour is noticeable. The recognition of such abnormalities is important in deciding the route of approach when it is necessary to radically operate such sinuses.

The Stewerman-Canfield operation, which I personally prefer, would not be applicable in these cases with receding anterior wall, nor would the preturbinal procedure, but the Caldwell-Luc operation would be better.

While variations in the maxillary sinus are less common than in other sinuses, the posterior superior angle may be pushed high up, mesial to the orbit and almost completely displacing the posterior ethmoids of that side and perhaps extending to the floor of the frontal. In one section we discovered that the sinuses were joined. Or a complete bony partition through the antrum dividing it into an anterior and posterior section may be found. In such cases the posterior cavity has its opening into the posterior ethmoids. In a patient in whom both cavities were filled with pus, the x-ray would show it to be one cavity and thus be of little assistance. But should only

* Read before the Eye, Ear, Nose, and Throat Section of the California Medical Association at the fifty-eighth annual session, May 6-9, 1929.

one cavity be involved, the x-ray would clarify the picture. In suspicious cases it is best to irrigate the sinus and have another exposure, or fill the cavity with lipiodol or other opaque substances.

Perforation of the maxillary sinus is very rare. A swelling occurring in the canine fossa never occurs as the result of infection within, but is due to congenital or an inflammatory cyst.

The infra-temporal wall may be very thin, as is also the infra-orbital wall, and occasionally dehiscences are present so that complications can arise from these two walls as a result of pressure from irrigation or from forcibly removing the membrane from them during the course of an operation. Emphysema of the eye may occur as a result of a sudden blast of sneezing when such a dehiscence is present in the infra-orbital wall.

The ostium may be very small or it may be so large that a cyst the size of a small cherry could be washed out of the antrum. An accessory opening is present in many cases and it usually occurs in the inferior posterior quadrant.

ETHMOIDS

Ethmoid cells may open directly into the infundibulum or may push up behind the frontal sinus to form the bulla frontalis. Here the diagnosis is only made when a radical frontal is done and the bulging wall is seen behind. The cribriform plate may fail to unite with the orbital, thus forming the fovea ethmoidalis which pushes out between the superior wall of the orbit and the inferior wall of the frontal to the extent that it may cover the whole orbit, extending back to the lesser wing of the sphenoid, and as happened in one instance, extending completely around the optic nerve.

The lamina papyracea in some instances is so thin that dehiscences are present; the bone being of tissue-paper thickness and allowing infection from infected ethmoids to pass through the mucous membrane and the thin bone by way of small venules and lymph channels. It is not uncommon, in the course of operation on the ethmoids, to break through the orbital wall. Such an accident may cause serious complications to the eye, although those are not so dangerous as they may appear. The posterior ethmoids may extend back and be reflected over the sphenoid so that their thin lateral walls are in direct contact to the optic nerve, the carotid and cavernous sinus. It is in such cases that complications resulting in a retrobulbar neuritis are liable to occur. Or by infection spreading through small venules into the cavernous sinus, a thrombosis may be the result. Not infrequently a large cell pushes out into the middle turbinate forming the bulla ethmoidalis. Sometimes in removal of the agger nasi, one may come into a specially located infundibular ethmoid cell.

SPHENOIDS

Sphenoid sinuses are usually equal in size, and are separated from the posterior ethmoids by the recessus sphenoid-ethmoidalis. They are divided by

a perpendicular partition which is the continuation of the crista galli, but this partition may vary considerably. It may be far to one side or the other so that a large cavity opens into one naris and a very small cavity into the other. Or the sinuses may be divided by horizontal partition, one being above the other, and, as will be seen in one of the slides, the upper sinus, in one instance, opens into the lower sinus by an opening in the partition. In the case of a very small cell on one side it may be completely overlapped by its fellow of the other. Sphenoid sinuses may be so large that they extend as far back as the clevis and anteriorly may so extend that the posterior ethmoids are pushed forward. The average distance from the anterior nasal spine to the posterior sphenoidal wall, is about seven and one-half centimeters, but may vary considerably. When the posterior wall is pushed back to the clevis, the distance may be nine or more centimeters, while if the sphenoid cavity is small and set forward, the distance will be less than seven centimeters. The anterior upper part of the sphenoid wall may be reflected back throwing the upper part of the cavity into the posterior ethmoids. This can only be recognized at the time of operation or afterward when the wound is healed. Pus would still appear upon the face of the sphenoid if only the ethmoid had been entered.

The lateral walls of the sphenoid may be of tissue-paper thickness with the carotid and optic nerve bulging into its cavity. Here, as in the posterior ethmoids, may be found the source of infection and complications to the optic nerve and cavernous sinus.

The lantern slides photographed from actual specimens will show clearly most of these variations that have been discussed.

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DISCUSSION

C. LATIMER CALLANDER, M. D. (450 Sutter Street, San Francisco).—I have read with great interest Doctor Budge's article on anatomical variations of accessory nasal sinuses. A discussion such as this is always timely, especially inasmuch as he joins his anatomic information with points of clinical interest and thus furnishes pegs upon which to hang anatomic knowledge.

His paper is particularly valuable, it seems to me, as indicating the paths along which infection travels which complicates sinus disease. He speaks interestingly of the extraordinary variations in the extent of the ethmoid sinus and he especially stresses the very shallow sinus and the danger of intranasal approach for drainage of this sinus where the anterior cerebral fossa may be damaged. I am interested in the analogy which he draws between the frontal sinus and the anterior ethmoids. The frontal sinus, to me, has always appeared a glorified anterior ethmoid cell and one in which the most extraordinary variations occur with regard to its drainage path into the nose.

The warning that he gives on dehiscences that may occur in the bordering walls of all of the sinuses is a timely one, not only from the point of view of operative damage, but from the possibility of chronic infection involving the adjacent structures. Particularly does this seem to be important in relation to the thin upper and outer wall at the apex of each nasal fossa where the most thorough ethmoid exenteration places the anterior cerebral fossa in danger.

COMPARATIVE BLOOD PRESSURES IN THE TWO ARMS

SOME CLINICAL OBSERVATIONS

By W. E. KAY, M. D.

AND

K. D. GARDNER, M. D.

San Francisco

OUR attention was first called to the striking variation of the blood pressure between the two arms in the following case.

Mr. G. reported for examination because, to his surprise, he had been rejected by an insurance company on account of high blood pressure. A recent examination by his physician, he said, was normal. The blood pressure in the left arm was found, by us, to be within normal limits, *i. e.*, 130 millimeters of mercury systolic and 80 millimeters diastolic. As an afterthought, to check this finding, the blood pressure in the other arm was taken and found to be 165 millimeters systolic and 90 millimeters diastolic. This was repeatedly checked. On further questioning of the patient we learned that the insurance examiner had taken the pressure in the hypertension arm. Our suspicions were aroused as to the frequency of this occurrence. On consulting the literature we were surprised to find so meager information regarding such an important fact. The majority of statements predisposed, within a few millimeters, that the blood pressures were equal in both arms. The only article we found with direct bearing was Bodenstab,¹ in the *Lancet* of 1925, who described the differences in the readings of the two arms and commented upon the importance of his findings.

The material for this study was obtained from observations upon patients comprising a general medical practice, ranging from a single examination to a series of examinations over a period of a year. Readings were made by the same individual, using a Tycos sphygmomanometer, in the usual auscultatory manner, palpation also being employed. Observations were successive in the two arms and were made in the sitting or reclining position. They were checked by one of us within a five-minute period.

One hundred and twenty-five patients were studied and five hundred readings were made. Variation of differences of five to ten millimeters in the systolic and diastolic readings were considered within the normal. One hundred cases, or 80 per cent, were within normal limits, while twenty-five cases, or 20 per cent, were distinctly abnormal. All of these were fluoroscoped and many of them radiographically checked.

A brief summary of the abnormal cases is arranged in the accompanying table showing sex, age, diagnosis, blood pressure and, in a few instances, treatment and results.

COMMENT

A study of the table submitted reveals that the arteriosclerotic and hypertensive patients more often show these variations. It is also seen that the greatest differences of blood pressures are found in this class of patients, and especially those with angina pectoris and aortitis. The group which is second in importance are those patients who have vasomotor disturbances, such as occur in the menopause.

In the age column, patients above forty-five years have the most marked variations. In the five younger patients, the differences are not so great. Of these it may be noted that only one has no disease, two have evidences of infection, one has an early arteriosclerosis and one a mucous colitis.

Sex apparently plays no part, since there are about an equal number of males and females.

The right arm is highest in the majority of cases, although we have observed in the same individual that there may be an interchange. In several cases after treatment, such as rest, sedatives, diet, etc., it is seen that the systolic and diastolic pressures drop and tend to equalize in both arms, for example, Cases Nos. 1, 18, 19, 21, 22 and 25. It is interesting to note that some patients equalize in the space of a few minutes without treatment. In these instances recovery from nervousness and excitement incident to the examination, seems to us to be the principal factor.

In a few patients, in the arteriosclerotic group, observed over a prolonged period of time, we found variations were more or less constant, *i. e.*, 9, 20 and 23. Case No. 23 illustrates how equalization and variation may reinterchange at some periods.

The reason for the difference of the systolic and diastolic pressures in the two arms is problematical. The fact that the pressure may later equalize, to again vary, and later again to equalize, and that occasionally a higher pressure may later be found in the arm in which it was formerly lower, rules out fixed anatomical differences as the cause. Rather does it suggest that it is due to varying functional changes in the condition of the arterial walls and, perhaps, of the capillary beds in the two arms.

It is disconcerting to the physician to find a normal reading in one arm and then to discover a high pressure in the other. From a life insurance standpoint these discrepancies are quite significant. A systolic pressure of 130 millimeters and 165 millimeters is, obviously, the difference between a normal and an abnormal blood pressure.

We realize that the number of our readings is comparatively small, but we feel that the occurrence of the differences of blood pressure in the two arms is sufficiently frequent, and of such clinical importance, as to warrant calling attention to it.

TABLE 1.—*Showing Different Blood Pressures in Twenty-five Patients*

Case No.	Sex	Age	Diagnosis	Blood Pressure		Treatment	Blood Pressure	
				Right	Left		Right	Left
1	F	64	Hypertension Arteriosclerosis Menopause symptoms	150/80	180/90	Ovarian Injections	150/80	145/80
2	M	60	Arteriosclerosis Endarteritis obliterans	180/120	160/100			
3	F	50	Arteriosclerosis	165/100	145/90			
4	F	24	Colitis, mucous	135/85	120/90			
5	M	54	Hypertrophied prostate	85/40	110/50			
6	F	45	Menopause Autonomic imbalance	135/80	120/80			
7	M	31	Normal	110/80	125/80			
8	F	54	Postthyroidectomy, residual Menopause	160/110	145/100			
9	M	58	Arteriosclerosis Hemiplegia, residual 9/ 6/28 10/24/28 10/31/28	165/100 142/90 170/100	185/110 140/85 155/90			
10	M	54	Arteriosclerosis Angina pectoris	170/80	150/80	Diet, rest Sedatives	140/80	110/60
11	F	66	Hypertension Arteriosclerosis Aortitis	190/110	175/110			
12	F	66	Arteriosclerosis Myocarditis Hypertension, chronic	200/120	180/120			
13	F	38	Arteriosclerosis, early Aortitis	160/80	140/70			
14	F	51	Arteriosclerosis Menopause	200/120	160/100			
15	M	54	Arteriosclerosis Angina pectoris	140/90	110/80			
16	M	49	Chronic bronchitis Obesity	160/90	174/94			
17	M	18	Intranasal catarrh	148/92	134/78			
18	M	50	Arteriosclerosis Hypertension, chronic Angina pectoris	180/110	145/90	Rest	134/78	134/78
19	M	48	Hypertension Angina pectoris Myocarditis Nervous instability	145/100	165/110	Sedatives 7/14/28 7/21/28 7/27/28	140/90 140/80 140/80	150/90 150/70 140/90
20	F	60	Aortitis Myocarditis Menopause	185/120	165/100	Sedatives 7/21/28 2/28/29	170/95 160/90	155/80 145/80
21	F	55	Arteriosclerosis Myocarditis Glandular dysfunction	150/90	170/110	Sedatives	140/90	140/90
22	M	21	Intranasal catarrh	140/92	128/80	Rest 15 mins.	130/78	124/82
23	M	69	Hypertension Arteriosclerosis Aortitis Cerebral accident 4/28/28 5/28/28 12/ 6/28 2/ 5/29	195/100 160/90 210/100 175/80	170/90 160/90 180/90 175/80			
24	F	57	Arteriosclerosis	200/120	160/100			
25	M	54	Arteriosclerosis Angina pectoris	140/90	110/80	Rest 10 mins.	115/85	110/80

CONCLUSIONS

1. Marked variations of blood pressure readings occur frequently between the two arms, and may be of clinical importance.
2. The incidence of the greatest frequency of these variations is found in arterial diseases and functional vascular changes in individuals above the age of forty-five.

3. We believe the cause of these differences to be varying functional changes occurring in the blood vessels of the two arms.
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REFERENCE

1. Bodenstab, W. H.: Blood Pressure—Difference of Readings in the Two Arms. Lancet, August 1, 1925, 45, 15, 360-361.

ADVANCED TUBERCULOSIS*

PROGRESS IN ITS TREATMENT

By CHARLES E. ATKINSON, M. D.
Banning

DISCUSSION by W. H. Bucher, M.D., Olive View;
Ralph C. Matson, M.D., Portland, Oregon; Philip H.
Pierson, M.D., San Francisco.

THROUGH the development of newer methods of treatment and by the more intensive and discriminating application of older methods, wider avenues of hope have been opened up for a class of patients to whom formerly we had little to offer, namely, those suffering from advanced tuberculosis and from its common and more serious complications. In what follows, some of the more recent aids in treatment and some complications are discussed.

PROLONGED, INTENSIVE REST

When rest first became appreciated as a remedial agency in tuberculosis, it was usually considered sufficient to have the patient give up work and "take things easy." This limited use of rest undoubtedly saved lives, but was insufficient for the large majority of patients. It then became the rule to prescribe bed rest for all patients whose temperature was above 100 degrees Fahrenheit. This rule was safe, but did not go far enough. As the result of close observation over a period of years, most authorities have become more and more convinced of the great value of rest, and of the great value of a prolonged rest in bed for certain patients for whom formerly rest would not have been prescribed at all. Temperature is still considered a guide of importance, but it is by no means the only guide, and not always a trustworthy guide. Whenever tuberculosis is active, regardless of the presence or absence of temperature, rest is usually advised. In one case this may be because of continued fever; in another, because of rapid heart action (which is often a more accurate guide than the temperature); in another, because of easy fatigue. In still another it may be because repeated physical examinations or serial x-ray studies reveal advancing lesions. It is well known that at the onset of tuberculosis, as well as during relapse, easy fatigue as a sign of activity is frequently noted before fever appears. So, too, when a patient is doing well, some activity of the lesion continues for a considerable time after the fever subsides.

In my own work I am using rest over a much longer period than formerly, and I am convinced not only that this has protected the patient against relapse, but that the number of durable results has been greater. Likewise, for patients who have had repeated periods of improvement, alternating with relapse, at intervals for years, yet who have made no real progress, or on the average have failed, I have found that if systematic rest is continued for months an arrestment of the disease may yet be secured; or, if a complete

arrestment is unobtainable, the patient may be restored to working ability. Often no improvement is noted after several months in bed, but if rest is persisted in over a further period of months, or sometimes years, healing will not rarely be initiated and will often continue. Much patience on the part of the sick person and patience and tact on the part of the doctor are required. In the sanatorium the example of other patients who are progressing favorably is a valuable source of inspiration to patient and doctor alike. In nonresponding cases, without regard to fever, a trial of strict bed rest, with the use of the bedpan, may lead to a reaction in the patient's favor. In especially resistant cases, even in the absence of laryngeal involvement, rest of the voice may be important. If the patient speaks in low tones and only infrequently, this lessens cough, conserves strength, and indirectly promotes healing. A period of absolute silence is worth while in some cases.

During the entire time that the patient is at rest physically, the great importance of mental rest should be kept in mind; for to secure body rest without mental rest is a mistake. The patient should be made as comfortable as possible, and every means that will contribute to peace of mind and mental repose should be employed. Judgment will dictate the particular form of avocation for the individual patient, but for many, the radio, if its use is properly controlled, is a priceless boon as a source of passive amusement or pastime.

POSTURAL REST AND REST ACCESSORIES

In certain cases of unilateral, or mainly unilateral, tuberculosis the patient is encouraged to lie on the worst side a large share of the time. A firm pillow placed under this side aids in securing local rest and brings about a limited amount of compression. A canvas sling connected to a spring suspended above the bed, for making upward pressure, may sometimes be employed to advantage. Some patients gradually accustom themselves to spend as much as twenty, or even more, hours out of the twenty-four in the lateral position. Good results are sufficiently frequent to warrant the more general use of this simple measure. A canvas belt, or chest splint, with or without a contained rubber bag for inflating, is occasionally helpful. The same may be said of weights (which may be made of shot, sewed in a double thickness of canvas), placed on the chest, which restrict the respiratory excursion locally.

THERAPEUTIC PNEUMOTHORAX

In selected cases of tuberculosis, induced pneumothorax has earned a place of prominence. Practically all authorities consider pneumothorax to be one of the greatest advances in the treatment of pulmonary tuberculosis, and even as conservative an authority as Fishberg says that "it is to be considered one of the best therapeutic procedures we have at present for the cure of phthisis."

In giving pneumothorax there is very little risk, and in the class of cases in which it is cus-

* Read before the Riverside County Medical Society, Riverside, January 13, 1930.

tomarily used the risk is inconsequential as compared to the risk without it. The more nearly one-sided the disease the better the prospect, but it is not at all necessary for the disease to be entirely one-sided. One frequently meets with patients who have a widespread, active lesion in one lung, with a smaller lesion, perhaps inactive or healed, in the other. This type of case may often be successfully treated by pneumothorax. Even though an active, advancing lesion is found in the better lung, provided the advance and activity are not extreme, if the general condition is fairly good, pneumothorax may save the day. I have had a number of cases of this type in which the disease in both lungs was satisfactorily controlled.

Increasing experience has led me to believe that it is not well to wait a great while before deciding on pneumothorax treatment. It has been my practice to first give the patient with advanced tuberculosis a thorough trial on rest. In the event of failure, if there appeared a reasonable probability of using pneumothorax successfully, this treatment was inaugurated. I have never had occasion to regret having used pneumothorax, but on several occasions I have regretted not using it sooner. While waiting, the tuberculosis spread to or advanced in the better lung. Even then, in a number of cases the induction of pneumothorax has served to check the disease. In others, induced thus late, it has failed to check the disease, while if used earlier it probably would have done so.

For hemorrhages not otherwise controllable, pneumothorax frequently stops the bleeding promptly. For certain hemorrhages which are otherwise controllable, by quickly cutting short the bleeding, pneumothorax saves the patient a great deal of strength, prevents the anxiety which a prolonged series of hemorrhages entails, and may save life.

In severe acute pleurisy the introduction of a small quantity of air to separate the pleural layers usually promptly relieves pain.

Pneumothorax not infrequently brings about an organizing, obliterating pleurisy. Fluid accumulates, and adhesions form through the fluid. Notwithstanding the use of higher intrapleural pressures during refills, contraction of the adhesions gradually pulls the lung out, precluding further pneumothorax treatment. As a result the tuberculosis may be reactivated. However, if the pneumothorax has previously been carried on over a fairly long period, this organizing and shrinking process is often a favorable termination. The reason seems to be that the organizing process extends from the pleura into the lung parenchyma and leads to the formation of contracting scar tissue which checks the tuberculosis.

SURGICAL PROCEDURES

In occasional cases, when pneumothorax is desirable but impracticable because of adhesions, if the adhesions are few in number, their cauterization by the method of Jacobaeus will render pneumothorax feasible. Again, phrenicectomy

may aid the healing process. Safer than pneumothorax, although ordinarily less efficient, phrenicectomy has a wider field and is to some extent replacing pneumothorax. In certain instances some other form of surgical interference for bringing about pulmonary relaxation or collapse, particularly thoracoplasty, should be considered. Thoracoplasty is a serious undertaking and, for success, it is necessary that the tuberculosis be more nearly one-sided, that the patient be in at least fairly good general condition, and not too old. An evident tendency to scar formation and contraction in the case under consideration greatly increases the likelihood of success. Thoracoplasty is being used more successfully each year and, in the aggregate, has saved many lives.

LIGHT THERAPY

Foreign workers were the pioneers in light therapy, which constitutes a wonderful advance. Artificial light was at first used by Finsen chiefly for skin tuberculosis, and sunlight by Rollier, chiefly for tuberculosis of the bones and glands; but further study has led to the employment of either natural or artificial light in various other types of tuberculosis. For bone tuberculosis, as well as for some other types of the disease, sunlight is preferable, often working real wonders in the rehabilitation of persons who with previous forms of therapy at best would have emerged from the period of treatment greatly handicapped with stiffened joints. For children who are under par, some of whom harbor a more or less latent or but slightly active tuberculosis of the hilar type, light is an agency of no negligible value. Light in some form is also useful for adults who have this type of tuberculosis. For adults suffering from the common type of pulmonary tuberculosis, light often serves as a valuable tonic. Some believe that light therapy has even more definite value in promoting recovery in certain cases of the usual type of pulmonary tuberculosis; but in this field its exact status is not yet established.

When using light it is well to remember that we are dealing with a highly potent agency. The case should be carefully chosen, and insulation carried on very gradually. Light, particularly sunlight, should be looked upon as a remedy as powerful as tuberculin, and if used for pulmonary tuberculosis per se, only afebrile, or relatively afebrile cases with a little or no activity should be insulated. In my experience, light is most advantageously used for seasoning and building up the patient when quiescence of the disease approaches.

ABDOMINAL TUBERCULOSIS

Light is of great value for this complication and has served to revolutionize our ideas as to the curability of intestinal tuberculosis. Either natural or artificial light may be employed, and in this country the workers at Saranac were perhaps the first to advocate the use of quartz light for this complication. My own preference, based on considerable experience with both sunlight and quartz light, with a number of gratifying results,

is for artificial light. Barring contraindication, I advise light baths for all patients who are not doing well if the lung lesion does not seem responsible for the unsatisfactory progress. Statistics have shown that bowel lesions are present in from 70 to 90 per cent of all autopsied cases of advanced tuberculosis, and when the intestinal involvement is minimal, symptoms are frequently almost entirely or wholly absent. I feel that patients whose progress is unsatisfactory without explainable cause should be given the benefit of light therapy. If the lung tuberculosis is particularly active, the chest is covered and only the other parts are exposed.

A special bland dietary and the use of lime, as exemplified by calcium chlorid, intravenously, in the dose of 5 or 10 cubic centimeters of a 5 or 10 per cent solution once or twice weekly, go hand in hand with the light baths. A relatively new measure for intestinal tuberculosis, apparently of definite value, is the administration of cod-liver oil and tomato juice, either fresh or canned.

For tuberculous peritonitis, light therapy is equally effective, and it is my conviction that its more frequent use will obviate many operations. Pneumoperitoneum is a method of promise, and I feel that it has already accomplished a good deal.

LARYNGEAL TUBERCULOSIS

At one time considered fatal, we now know that laryngeal tuberculosis is frequently curable. In the ordinary, slowly progressive form, if the laryngeal and pulmonary processes are not too advanced, the results are often satisfactory. Voice rest (absolute silence, with the use of a writing pad) should be instituted at the outset. Light therapy, as exemplified by reflected, condensed sunlight, when its use is feasible, serves to relieve pain and definitely promotes healing in some cases. Treatment with the galvanocautery gives good results at times, and when the epiglottis is extensively involved, epiglottidectomy often gives prompt relief and may prove curative. The occasional (not too frequent) application of pure trichloroacetic acid to ulcers seems beneficial. The instillation of a 20 per cent solution of chaulmoogra oil in olive oil once or twice weekly makes the patient more comfortable and apparently favors healing.

TUBERCULOUS EMPYEMA

For this complication the closed method of treatment has taken precedence. Fluids on the border line between serofibrinous and pus not infrequently clear of their own accord. Even frank, yellow pus frequently shows no pyogenic organisms, and on the average responds far better to closed methods than to open drainage. Some cases of empyema, particularly those complicating pneumothorax treatment, will yield to repeated aspirations followed by the injection of air.

Purulent fluids which are not controlled by aspiration and air injections may be treated by the introduction of a one per cent formalin-glycerin mixture. If the pus has formed during pneumothorax treatment, as well as in certain other instances, it may be desirable to maintain com-

pression of the lung while treating the empyema. When this is true, air is introduced through a separate needle, simultaneously with the withdrawal of the fluid, or small amounts of air may be entered through the same needle alternately with the withdrawal of small quantities of fluid. The formalin mixture is then injected. During the reaction which follows, fluid may rapidly reaccumulate, causing a pronounced rise of pressure, and this should be borne in mind in deciding upon the amount of air to be injected. Ordinarily one-half as much air, or less, as compared with the quantity of fluid removed, is introduced.

The reaction is often intense, so it is well to inject not more than one-half ounce of the formalin mixture the first time. When the reaction has wholly subsided, usually after a week or two, or longer, the process is repeated. It may be best to then introduce a larger quantity of the formalin mixture, but even in robust patients it is seldom advisable to use more than one or, at most, two ounces of a one per cent mixture. Meanwhile if the fluid again reaccumulates rapidly, it is removed, but no formalin is put in until the reaction again subsides. As the treatments are repeated from time to time, as indicated, the fluid tends to become thinner, less and less purulent, and less and less toxic, while the temperature drops. Sometimes a sanguineous change, which is usually a favorable sign, is noted. In the majority of cases the fluid loses its purulent character entirely, and in some cases finally disappears.

If reexpansion of the lung is desired, the fluid is first withdrawn through a large trocar, a rubber tube is inserted through the cannula, and the formalin mixture is entered. The tube is connected with a vacuum bottle and suction drainage established. Thereafter, when indicated, small quantities of the formalin mixture are put in through the drainage tube.

As soon as practical, empyema patients are given heliotherapy, which I believe aids in curing the empyema, besides serving as a general tonic.

CONCLUSIONS

Notwithstanding the better results that are nowadays obtained in early tuberculosis, there are still many cases of advanced tuberculosis. The majority of patients who come to health resorts suffer from more or less advanced tuberculosis, so it is a satisfaction to know that we have definite and effective methods of treatment. We can now undertake the care of this class of patients, and treat the more serious complications which arise with a greater feeling of confidence.

205 North First Street.

DISCUSSION

W. H. BUCHER, M. D. (Olive View Sanatorium, Olive View).—Between 65 and 70 per cent of the patients admitted to Olive View Sanatorium are far advanced cases. For these 750 people who are receiving treatment for tuberculosis the main factor is rest.

Physical rest is insisted upon, and can be obtained. Mental rest is sought for, and a social service department makes arrangements in the home so that the father or mother who is lying in bed in the sana-

torium is relieved of the worry consequent upon the illness which has disrupted the family. Psychic rest or relief from emotional stress is even more difficult; but we think there is hope in this direction. Recently we had a trained psychiatrist working with us for a month who delved into some of our problem cases and was able to release the mental barbed hook which was a constant irritant to the patient.

It is not sufficient to put a patient to bed and say rest, more rest, and still more rest. That solves only the physical side; and one may forego the physical rest if mental or psychic rest can be secured. There have been cases within my knowledge where patients with financial worries were allowed to go on part-time work and reached an arrestment probably in shorter time than if compelled to stay abed and fret. The work was in reality a rest as it released the patient from mental stress. Of course, only a few cases come under this classification, but they exist and must be considered. Deeper yet is the psychic stress, and those of us who have the ability to combine with our medical knowledge the power to dislodge a "psychic irritant" will help many patients toward recovery.

Rest is what we want. It is not obtained by merely putting a patient to bed.

We have tried the various postural rest treatments without noticeable results.

More than 10 per cent of our cases find relief, help, and material benefit from pneumothorax: at present there are eighty-eight patients taking this treatment, and it is by far the outstanding procedure on which we can count for definite results.

Thoracoplasty and phrenicectomy have a definite place in the treatment of selected cases. We have done seventeen of the former and twenty-five of the latter.

We use sunlight for our preventorium cases and for bone tuberculosis; not at all for the pulmonary type. We use the lamp for intestinal cases with favorable results, we believe.

In throat cases artificial light is a therapeutic adjunct. In gland cases (neck) the x-ray has been decidedly good.

With all these means at our hands close analysis will focus on the word "rest." Whether by the skill of the psychiatrist, the surgeon's knife, by pneumothorax or simple physical quietness, or by any other means that will immobilize the patient over a period of months or years, good results will come in proportion to the amount of rest we can secure for the patient. The note of hopefulness which Doctor Atkinson sounds in cataloguing these procedures is the one we like to hear, because it tells how we are helping the patient with advanced tuberculosis.

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RALPH C. MATSON, M. D. (516 Medical Arts Building, Portland, Oregon).—The problem of treatment of advanced pulmonary tuberculosis resolves itself chiefly into a question of controlling endogenous reinfection, which is responsible for relapses and extra pulmonary complications such as laryngeal and intestinal tuberculosis. The frequency of reinfection and consequent complications is directly proportionate to the duration of a positive sputum. Consequently our efforts should be directed to measures which will render the patient's sputum tubercle bacilli free in the shortest possible time.

Progress in the treatment of advanced tuberculosis has been quite marked since the advent of artificial pneumothorax and other procedures included under the term "operative collapse therapy." These measures, if successful, shorten the period during which the patient is subjected to endogenous reinfection because of sputum coming from open cavities in the lung. Perhaps the greatest progress in the treatment of tuberculosis and its complications will be made when: first, measures intended to lessen the frequency of lung reinfection and other complications are utilized;

second, when a diagnosis of complications is made early.

Generally speaking, in advanced tuberculosis the longer the patient harbors an open cavity with a positive sputum the greater the danger of endogenous reinfection of the same or contralateral lung, gastro-intestinal tract or throat. It is therefore essential, if the patient is to be benefited from treatment, that sources of reinfection be brought under control.

The adoption of collapse therapy and recognition of the value of such procedures as artificial pneumothorax, intrapleural pneumolysis, phrenicotomy, and thoracoplasty does not rest alone upon their being valuable procedures in the treatment of advanced tuberculosis, but also upon their great importance as a prophylactic procedure in the prevention of endogenous reinfection, which results in the serious complications frequently associated with the advanced stages of the disease.

While many patients who have incipient or moderately advanced pulmonary disease with excavations and cavity formation experience healing of the lung, unfortunately a considerable number later develop an ileocecal tuberculosis from implantation of tubercle bacilli swallowed early in the evolution of their disease. This frequently prevents final recovery.

The patient with a cavernous tuberculosis should not be subjected to prolonged, expectant treatment, as not infrequently the lung disease becomes so widespread that collapse therapy is contraindicated when it is most needed. Utilization of collapse therapy early in cavernous tuberculosis, and the early diagnosis of gastro-intestinal complications will very much reduce the proportion of advanced patients who seek admission to tuberculosis sanatoria today.

Many patients with laryngeal or intestinal tuberculosis have recovered from these serious complications as a direct result of the beneficial influence of artificial pneumothorax, or other surgical collapse procedures.

The early recognition of complications, frequently unsuspected, particularly intestinal tuberculosis, will greatly enhance the patient's chances for recovery. Therefore the presence or absence of laryngeal or intestinal tuberculosis should be determined, if possible, through repeated laryngoscopic or roentgenological examinations during the course of the disease. Too much stress cannot be placed on the value of roentgenological investigation of the gastro-intestinal tract in every patient in whom the slightest suspicion exists as to the involvement of the intestines. The surgical treatment of intestinal tuberculosis has been somewhat retarded because of the fact that heretofore surgical intervention has been too late. Certainly, if we are to accomplish anything in the surgical treatment of intestinal tuberculosis, the diagnosis and surgical attack must be made at a time when the intestinal distribution of disease is very limited.

I feel certain surgical intervention has much to offer the advanced case of pulmonary tuberculosis.

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PHILIP H. PIERSON, M. D. (490 Post Street, San Francisco).—This paper of Doctor Atkinson's and the discussions by Doctors Bucher and Matson are excellent in every detail. I will not reiterate the many good points which all three have brought out.

1. There are four or five points which I think might receive special emphasis; one of the most important is the psychological aspect of treating these patients. The trained psychiatrist is often helpful, but if the physician seeing these advanced patients will train himself to appreciate the many worries which occur to them and show his appreciation by a sufficient discussion of the problems with the patients, their heartiest coöperation may be secured. The advanced patient often requires more time when the visit is made in order to gain the confidence of the patient and give the physician an opportunity to prescribe at least symptomatic treatment, which is often of very great help.

2. The question of the patient lying on the affected side has been mentioned. If the support is placed under this side lessened respiratory motion results, but without it the lower side is opened by the accordion action of the ribs and the patient uses that side more than the upper lung, which is on the smaller convex arc of the two. This little point should always be borne in mind when suggesting postural repose.

3. We are all agreed as to the benefit of artificial pneumothorax and, as has been said, its use before too long a period of waiting will save many lives. The French have used bilateral pneumothorax to advantage in a considerable number of cases. Of course, its technique is more dangerous and it is necessary to have the first side in not too severe a degree of collapse when the other side is started because if spontaneous pneumothorax should result on the second side serious effects might ensue.

4. A further benefit in tuberculous empyema has been the use of five per cent gomenol in either sterile petrolatum or olive oil. In certain instances it has healing influence upon the pleura and when the acuteness of the infection has subsided it may be used to fill the whole thoracic cavity on that side, thereby producing oleothorax.

5. Heliotherapy is of considerable value in treating extra pulmonary tuberculosis, combined with a strict and rigid regimen, but the dangers are so many when used in pulmonary tuberculosis that I feel it should be avoided.

6. Phrenic paresis or evulsion helps to bring about local lung rest in those cases where pneumothorax is impossible and, coupled with thoracoplasty, has certainly offered avenues of hope to many who otherwise would have died. A careful selection of these cases is, needless to say, a most important factor in the obtaining of good results.

ACUTE PULMONARY EDEMA DURING PREGNANCY AND LABOR*

REPORT OF CASES

By HARRY K. BONN, M. D.
Los Angeles

DISCUSSION by W. Clifford McKee, M. D., Los Angeles; Henry A. Stephenson, M. D., San Francisco; Walter B. Hill, M. D., Long Beach.

PULMONARY edema as a terminal complication of eclamptic cases is fairly common. A pulmonary edema of sudden onset, with a rapidly fatal termination, without convulsions or coma, occurring during pregnancy or after labor has begun, is, however, somewhat rare. Very few cases are recorded in the literature, and many textbooks fail to mention the subject; those that do dismissing it with scant mention.

Edema of the lungs is, of course, to be feared in cases of chronic cardiac disease, and edema or pneumonia may appear during eclampsia, usually with a fatal termination. The type of pulmonary edema under discussion is not related to the terminal phase of an eclampsia, wherein cardiac disease is the prime etiologic factor.

SURVEY OF CASES IN LITERATURE

The writer has been able to find only five recorded cases of acute pulmonary edema, occurring either during pregnancy, during labor, or

shortly after labor had been completed. McIlwraith and Scott¹ reviewed the literature from 1903 to 1918 and could find but a single article, that of Pouliot,² relative to this clinical picture. McIlwraith and Scott in 1918 reported two cases of acute pulmonary edema during pregnancy. Icasalegui³ contributed a report of two cases in 1919, one occurring during labor, the other during the puerperium. Corbin⁴ in 1922 added the report of a case where the edema appeared shortly after labor was completed. He was privileged to see this patient in a later labor with reappearance of the edema.

K. C. McIlwraith and W. A. Scott quote Pouliot, who writes concerning edema of the lungs complicating pregnancy. Pouliot declared that pulmonary edema is one of the most serious complications of pregnant women with cardiac lesions. Symptoms reach a crisis only after the efforts of delivery. This author believes that "the condition is due to the hypertension of the lesser circulation resulting from a very narrow mitral stenosis." He warns especially against the induction of premature labor during an attack, since not infrequently attacks may occur during comparatively good health and before labor.

The possibility of the condition being a manifestation of the toxemia of pregnancy is admitted. E. Centenaro considers all pulmonary complications during pregnancy up to the time labor begins as being due either to the different intoxications (renal or hepatic), or to the infectious diseases or to cardiac pathology.

Albert, aside from the infectious diseases and the various intoxications, says that acute pulmonary edema may be produced by "purely mechanical causes," that is, a spasm or cramp of the ventricles, as described by Grossman and Huchard.

Within the realm of possibility must be considered an embolus or a shower of emboli as causative factors, especially in those cases wherein pulmonary edema has followed shortly after labor has begun or shortly after its completion.

REVIEW OF CASES IN THE LITERATURE

The paucity of reported cases seems to warrant a brief abstract of the reported cases in order to illustrate the various types. McIlwraith and Scott of Toronto report two cases of pulmonary edema of sudden onset and quickly fatal termination, occurring at the sixth and eighth months of pregnancy. These cases were private patients, but were each seen by both McIlwraith and Scott.

REPORT OF CASES

CASE 1.—A primipara of forty-two years of age whose blood pressure was 140 and whose pelvic measurements were normal. The urine was examined every two weeks and was negative. The last menstruation had begun October 4. On March 29, albumin was negative and the systolic pressure was 142. A large amount of albumin and a pressure of 240 was present on April 10, this date being approximately the end of the sixth month of pregnancy. The patient claimed to be feeling in the best of health and was much annoyed when informed that she must go to the hospital at once and not to the theater as she had planned. She did confess to having had a slight head-

* Read before the Obstetrics and Gynecology Section of the California Medical Association at the fifty-eighth annual session at Coronado, May 6-9, 1929.

achic for the past two days. There were no eye symptoms or nausea, but slight edema of the feet and ankles was present. Before entering the hospital at 7 p. m., she developed pain under the angle of the right scapula. Five hours after entering the hospital she vomited frothy, bloody fluid, and was in great distress from the extreme dyspnea. Deep cyanosis was present. Both sides of the chest were full of bubbling râles, and bloody fluid was running from both the nose and the mouth. Dullness was present both in front and behind to the levels of the clavicles. The blood pressure was 160. The basilic vein was opened but only a small amount of thick, almost black, blood was obtained. Oxygen was given subcutaneously. The patient died at 3 a. m., three hours after the onset of the edema. Autopsy could not be obtained.

CASE 2.—A II para, age thirty-five. Careful examination failed to reveal any demonstrable cardiac lesion, although attacks of faintness years before had been thought to be due to heart disease. Bimonthly urinalysis failed to show albumin. At the eighth month considerable albumin, granular casts, and many bacilli were found. Systolic pressure was 210 and a slight edema of the feet was present. She was sent to the hospital and the usual measures instituted.

At 7:30 p. m. the patient was sitting up in bed chatting with her husband and feeling quite well. Fifteen minutes later she was seized with sudden coughing and dyspnea and choking. When McIlwraith arrived fifteen minutes later her distress was extreme and marked cyanosis was present. Large bubbling râles were heard on both sides of the chest, the patient being conscious and rational. Venesection was done, sixteen ounces of free flowing blood being removed. Morphia and camphor in oil were given. Three hours after the onset a cesarean was proposed but a skilled anesthetist refused to give an anesthetic. Therefore the membranes were ruptured and she was permitted to breathe oxygen. Her condition improved but she vomited large quantities of clear fluid during the night. However, by 12 noon, extreme dyspnea had reappeared and blood-stained frothy mucus streamed from her nose and mouth. Cesarean section, under gas and local anesthesia, was done at 3:30 p. m., a living child being delivered. The mother's condition did not improve and she died five days after the onset of the pulmonary edema.

CASES 3 and 4.—Icasalegui reports two cases of acute pulmonary edema occurring during labor and in the puerperium. The first case presented the edema during the expulsive period, at which time uterine movements were paralyzed. Forceps were applied, the fetus extracted and, after 350 grams of blood had been withdrawn, the edema subsided.

In the second case the pulmonary edema promptly subsided after withdrawing 400 grams of blood.

CASE 5.—Corbin of Mendoza, Argentine Republic, reports a case of acute pulmonary edema occurring after the conclusion of labor. The patient was twenty-four years of age, para II. The first labor had been normal. During the second pregnancy no disease of the heart, the kidneys, or other organs had been found. The second labor resulted in a spontaneous delivery and, about ten minutes after the placenta had been expelled, acute pulmonary edema appeared with the customary symptoms and physical findings. Morphine was administered and turpentine stupes applied to the chest and back. After coughing up blood-stained fluid for two or three hours, the fluid became rose-colored and finally clear. The lung findings disappeared and the patient was up and about in ten days.

Corbin first saw this patient in September 1915, and examined her frequently in the next five years. No cardiac, renal, or other pathology could be found.

In July 1920 the patient consulted him, as she was about three months pregnant. Corbin feared a recurrence of the pulmonary edema and sent her to several eminent colleagues in Buenos Ayres for consultation. All were agreed that the patient was perfectly healthy and laughed at the idea of future attacks of pulmonary edema. The patient had a persistent and very great fear of an attack and insisted that she would die in her labor.

In November she had an attack of edema lasting two hours, relief being secured with morphine. The question of inducing premature labor was discussed, but the morphine had so quickly relieved the condition that it was decided to wait. An x-ray of the chest was taken and pronounced normal. On December 12 two more attacks occurred of two hours' duration, relieved by the same treatment. On December 14 another attack occurred and again relief was secured.

Blood pressure was 110, the urine normal on December 21. Every four or five days she would have a two-hour attack of pulmonary edema, always coughing and expelling bloody and frothy fluid, and always relieved by morphine. On January 2, 1921, an attack began about midnight; morphine, stupes, oxygen, and all other measures were without avail, and the patient gradually became worse and died at 6 a. m., six hours after the attack began. An autopsy was not permitted.

REPORT OF CASE BY AUTHOR

My personal case was referred to me by Dr. G. D. Conover, to whom I am indebted for the history and physical findings.

CASE REPORT.—Mrs. D. M., age twenty-two, married two years, primipara. So far as she knew she had never been ill nor had she ever consulted a physician. She had been an orphan since she was four years old.

The patient was examined by a physician in a near-by city who assured her all was well. She later moved to Los Angeles and consulted Doctor Conover January 21, 1926. Menstruation first appeared at thirteen years of age, was of the twenty-eight day type without any pain. Her last menstruation began May 31, 1925, and lasted three days. Quickening occurred October 30, 1925, according to the patient. The estimated date of labor was about March 10, 1926. The patient was five feet three inches in height, stockily built, weighing 135 against a norm of 130. No cardiac pathology could be found and the lungs were clear and free from râles. There was no abnormal thyroid enlargement. Blood pressure was 130/80; pulse 80, of good volume. No toxic symptoms were noted. The fetal heart sound was located in the right, lower quadrant, rate 130. No external pelvic measurements were made, but vaginal examination indicated an ample pelvis. The perineum was intact and the cervix soft. The urine was negative for albumin.

On February 2, blood pressure was 130/85; pulse was 80; urine was negative for albumin. No toxic symptoms were present. On February 9, pressure was 130/90, and slight edema of right foot and leg was present and a trace of albumin was found in the urine. On February 10, pressure was 135/85; urine was negative for albumin. Edema of the leg had disappeared. On February 17, pressure was 130/80; trace of albumin was found again in the urine; edema of right foot was present. On February 24, pressure was 135/85; albumin had disappeared, but right foot was edematous. On March 1, pressure was 130/90; patient felt well, no albumin was present in urine, and the edema had disappeared. No headache or eye signs were noted during this time.

On the morning of March 3, 1926, she had a few cramplike pains and, believing herself to be in labor, entered a maternity home. About 11:30 a. m. she had a rather severe pain and the amniotic sac ruptured, considerable fluid being lost. Within a few minutes frothy, blood-stained fluid began to pour from both the nose and mouth. She was deeply cyanosed—face,

lips, and nails; was unable to lie down and dyspnea was extreme. Doctor Conover saw her at 12 noon. I saw her at 12:30 p. m. The picture was unchanged. She was sent to the hospital, sitting upright in the ambulance since it was impossible for her to lie down because of extreme dyspnea.

On hospital entrance, temperature was 98 degrees; pulse, 130 to 145; respirations, 36 to 45. The blood-stained fluid streamed from her nostrils and mouth, and she was unable to lie flat. She was placed in an exaggerated Fowler position. It appeared that each minute would be her last. Blood pressure was 164/110. Nausea was present. She had been given morphia, one-fourth grain, before being moved to the hospital, with almost complete cessation of her labor pains. Between 2 and 6 p. m. she received digitalis, morphin and atropin at different times. She was extremely restless, turning from side to side and sitting bolt upright in the bed most of the time.

At 6 p. m. she seemed in a little better condition; at least at this time she could lie almost flat in the bed. Notes on a consultation with an obstetrician, Dr. M. H. Ross, were as follows: "Having irregular uterine contractions every five to ten minutes apart, lasting from ten to thirty seconds. Bubbling râles in chest, as heretofore noted. Expecterating blood-stained fluid; likewise identical fluid streaming from nose. Right heart dilated; pulse 135, irregular and of soft quality. Blood pressure was 124/80. Marked cyanosis and marked dyspnea. Opinion: Pregnant in labor at term; dry labor; dilated right heart; acute pulmonary edema. Fetal heart tones very weak, but believe child alive. Rectal examination shows about one finger dilatation. Concur in advisability of immediate cesarean section under local anesthesia."

Accordingly a cesarean section was done at once under one-half of one per cent novocain anesthesia, a dead child being delivered.

Section was not especially difficult although it was necessary to keep the patient in a modified Fowler position during the operation. She was returned to bed in about the same condition as before operation, pulse 120, respiration 40. The blood-stained fluid continued to pour from her nose and mouth.

At 10:30 p. m. of the day of the operation, a catheterized specimen showed 1016, acid, cloudy, yellow, measurable albumin, sugar negative, indican, acetone and diacetic acid one plus, numerous hyaline casts, fine and coarse granular casts, and a few pus and red blood cells.

At 4 a. m., temperature was 103.2; pulse, 140; respiration, 40. Three hours later the patient gave two gasps and died. Autopsy could not be obtained.

COMMENT

The salient points as regards the two cases of McIlwraith and Scott were: pulmonary edema of sudden onset occurring at the sixth and eighth months of pregnancy, the outstanding feature being a tremendously high blood pressure. Apart from the urinary findings, little else could be discovered before the onset of the acute symptoms. In the second case there was considerable edema of the feet. A preëxisting cardiac lesion was not found in either case.

McIlwraith and Scott do not consider that their cases can be considered eclamptic because these patients did not have convulsions, which they consider essential for eclampsia. Nor did these patients die in coma without convulsions, which some observers consider sufficient to classify the case as eclamptic. Hence McIlwraith and Scott consider that this condition of pulmonary edema is due "to a profound toxemia giving rise to a high blood pressure which finds its outlet in a

spot of weakened resistance in the lung." They further remark that the blood pressure is the best indicator of the severity of a preëclamptic toxemia and that the possibility of pulmonary edema must be considered in those cases presenting albuminuria and high blood pressure.

In the cases of Icasalegui the cause of the pulmonary edema was neither in the lung nor heart nor kidneys. His second case presented arterial hypertension as shown by the sphygmomanometer. The original article of Icasalegui is not obtainable and the meager data of his two cases were taken from an abstract of a prior abstract.

Corbin believes that the cause of the pulmonary edema in his case was "spasm of the left ventricle" (Huchard). He states it could not have been due to intoxication, since careful examination of the heart, kidneys, and other organs failed to show disease and also morphin cured the patient in several attacks, which would not have occurred had intoxication been the cause.

The case herewith reported did not present a blood pressure extraordinarily high and the albuminuria and edema of the feet were of a transitory type. The prompt appearance of the acute pulmonary edema, after the amniotic sac ruptured, suggests a causal relationship perhaps, as regards either an embolus or a shower of emboli. The cause of the edema may have been a spasm of the ventricle as suggested by Huchard and Corbin. I do not feel that the eclamptic state was responsible. It is to be much regretted that an autopsy was not obtained in any of the four cases dying of this disease.

As regards treatment, Corbin insists that morphin should relieve the edema promptly if no intoxications, renal or hepatic, especially are present. Icasalegui, on the other hand, states that the only valid treatment of acute pulmonary edema, whatever its cause, is a general blood letting to the extent of 300 or 400 grams. Blood withdrawals, according to Ballard, of a medium grade of 500 grams produce an immediate and lasting fall of the arterial pressure in elevated hypertension of the renal type, as well as a diminution of the work of the cardiac muscle, shown by the immediate reduction of tension. The amount of the fall of arterial pressure does not depend on the quantity of blood withdrawn and the effect continues for several days.

SUMMARY

Acute pulmonary edema carries a high mortality during pregnancy, this mortality increasing as term is approached and likely reaching its peak during labor. Seven reported instances (six patients) of acute pulmonary edema occurring during pregnancy, labor, or the puerperium are cited. There were four deaths, one at the sixth and one at the eighth months of pregnancy, one very near to term, and one during the first stage of labor. Of the three patients surviving the edema, one occurred during the expulsive stage

of labor, the other two during the puerperium. The comparative rarity of acute pulmonary edema during pregnancy, labor, and the puerperium accounts for the extremely small number of reported cases.

The following premises seem logical. A patient who has survived a previous attack of acute pulmonary edema occurring during pregnancy, labor, or the puerperium, and who has again become pregnant is entitled to a therapeutic abortion. A tubal sterilization at the time of the abortion or later, as circumstances dictate, is also indicated. The choice of either the abdominal or vaginal routes for the performance of the tubal sterilization is a matter of personal preference.

When acute pulmonary edema occurs during pregnancy or labor and the blood pressure is not unduly high, morphin is indicated. Under like conditions but with a high blood pressure, venesection is to be done. With either of the preceding conditions present, at the first sign of improvement, slight though it may be, the uterus should be emptied.

For those cases near term or in labor, the procedure of choice is a classic cesarean section under local anesthesia, performed at the slightest evidence of improvement in the patient's condition, and at the latest, not longer than four to six hours after the onset of the edema. It is questionable whether any delay is justifiable in these cases. Delay in emptying the uterus certainly minimizes the chances of securing a living babe and the possibility of the mother's recovery.

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DISCUSSION

W. CLIFFORD MCKEE, M. D. (1930 Wilshire Boulevard, Los Angeles).—Doctor Bonn is to be congratulated upon his presentation of such an interesting obstetrical complication. I have not had the opportunity of seeing a patient who has had acute pulmonary edema except with a coexisting toxemia.

Any pulmonary disease carries with it a serious import during the pregnant or the puerperal state. When pulmonary edema appears, either with a toxemia or independent of it, the condition is of almost fatal consequences.

Generally speaking, one presupposes cardiac failure when acute pulmonary edema develops. In the absence of cardiac disease it is usually thought to be due to a toxemia affecting the heart or possibly the pulmonary circulation. This need not be an eclampsia but some other toxemia that does not fit the usual picture. It is conceivable that a localized allergic reaction could be responsible, for it has been demonstrated that placental fragments are found in the lungs of pregnant women.

In reviewing Doctor Bonn's reputed cases, one is impressed by the fact that some of these presented evidences of a toxemia; could it not be possible that all of them were dependent upon some type of toxemia, for it is possible for eclampsia to develop with

but little of the usual evidence. Doctor Bonn's personal case did show some albumin and edema, and it is possible that a toxemia was present. It would have been interesting to have had electrocardiographic studies of the case as well as blood chemistry findings. They might have thrown some light upon the condition.

The patients that I have seen with acute pulmonary edema were those who had an eclampsia. My experience has been that the best results were obtained with the intravenous use of strophanthus and atropin or adrenalin. If the patient was restless, morphin was also given.

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HENRY A. STEPHENSON, M. D. (490 Post Street, San Francisco).—One concludes from Doctor Bonn's article that acute pulmonary edema is a very rare condition since only six cases have been reported. Indeed most obstetricians have never seen the condition except perhaps as a terminal finding in patients dying from toxemia. Osler mentions the fact that there are cases of recurring attacks of pulmonary edema without obvious cause. Corbin's case seems to fall in this group.

Welch advanced the theory that the edema is the result of transudation from the lung capillaries due to disproportionate weakness of the left ventricle. Cardiac failure, then, should account for the majority of cases, though the exact lesion is not always demonstrable.

I have seen only one case of pulmonary edema not associated with demonstrable toxemia. This was in a primipara who had a short labor terminated by low forceps for fetal heart irregularity under ether anesthesia, which was taken poorly. Twelve hours later acute pulmonary edema ensued and, in spite of atropin, morphin, and blood letting, went on to a fatal termination. No autopsy was obtained, therefore an incipient postanesthetic pneumonia cannot be ruled out.

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WALTER B. HILL, M. D. (420 Cedar Avenue, Long Beach).—I have during the past two years had but two cases of pulmonary edema complicating pregnancy. A short presentation of these cases follows:

CASE 1.—Mrs. C. G., age thirty-one, white. Working diagnosis: Parturition normal, R. O. P., with hypertension and albuminuria. (Doctors Fred Clarke and Frank Settle were with me on this case.) This patient entered the hospital by ambulance at 6 p. m. October 28, 1928. She had a grave toxemia of pregnancy, complicated with a pulmonary edema. She was a German girl, weighing 158 pounds, a primipara, thirty-one years of age. Her blood pressure was 200/130 when she entered the hospital. She was given one-sixth grain of morphin, followed in twenty minutes by another one-sixth and one-seventieth grain of atropin. A cesarean section was performed within an hour.

Following the cesarean, blood pressure was 160/100. Pulse rate remained about 100. Within twenty-four hours her nitrogen was normal and the albumin, which was marked on entrance to the hospital, was markedly less, and there were few casts. The babe delivered was a five and one-half pound girl in very fair condition.

On November 16, 1928, the patient left the hospital by ambulance. She had progressed beyond expectation. Pulse rate was 100; blood count was improved; and N. P. N. was normal. All medication was discontinued following the delivery and routine obstetrical care was given this patient. The babe was on a formula from the beginning.

CASE 2.—Mrs. L. J. Patient was a primipara, weighing 141 pounds, and was sixty-four inches in height. Age, thirty-two years. She had a history of former acute tuberculous infection of the chest. She had a mitral stenosis, and a rather marked tachycardia. Her hemoglobin was 50 per cent, her red count 3,000,000, and her leukocytes 11,800. She had a trace of albumin in her urine, but no casts.

Patient entered the hospital in active labor at 4 p. m., December 18, 1929. There were no symptoms of oncoming edema at first. At 9 a. m., on the 19th, the patient began to expectorate bloody sputum and to vomit a frothy, bloody fluid, and rapidly became cyanotic and in great distress from extreme dyspnea.

Dr. Fred Clarke was called in consultation. Both sides of the chest were filled with bubbling râles and the patient appeared in a desperate condition. At this time she had progressed fairly well in labor, the head being in the low midplane, and cervix was dilated about three fingers. She was given oxygen and a quick forceps delivery was done.

This patient was given morphin grains 1/6 and atropin grains 1/100 at onset of the pulmonary edema, and following delivery a digifolin ampoule was given every four hours, and atropin grain 1/75 twice during the forenoon. After twenty-four hours, tincture of digitalis minims 15 was given every six hours. Patient remained medically under Doctor Clarke's care for weeks following her delivery. Her babe was in good condition and was at once put on the bottle.

I believe that these cases should be treated with morphin, atropin, and digitalis, and that the uterus should be emptied just as soon as possible. They are, fortunately, rare but always seriously grave cases.



DOCTOR BONN (Closing).—I have discussed the subject of pulmonary edema during pregnancy with several colleagues and their remarks are reiterated here. Souther of Cincinnati has suggested the use of adrenalin chlorid, but the dose is one drop in saline solution every five minutes until either a beneficial effect is observed or until a maximum of fifteen drops in all has been given.

Arnold Schwyzer of St. Paul has observed one case in which an attack occurred during the first pregnancy and again during a second pregnancy, the patient surviving a further attack during the delivery. Schwyzer states that he regards pulmonary edema as an angioneurotic condition and that it is quite likely due to some form of toxemia.

Kerwin of St. Louis has seen two cases in which neither cardiac disease nor toxemia was present, both recovering. He was fortunate in securing an x-ray of the chest during the attack in one case, and it may be of interest to note that the roentgenologist reported an increase in the peribronchial markings, especially in the hilus region over the lower lobe. The markings did not extend into the apices, and were considered an important point in the diagnosis of edema.

Edmund Andrews of Chicago, while studying alkalosis through experimental work on dogs, found that a dose of alkali that would not affect a normal dog would produce almost fatal edema of the lung, with coughing up of mucus, in a dog with acidosis. Andrews quotes this occurrence, which was deliberately repeated after its accidental finding, as a possibility in some of these acute pulmonary edemas in the later stages of pregnancy. He suggests that the mechanism may be possibly as follows: Under alkalosis there is a more or less dilution of the blood. When that amount of filtrate combined with the protein in the blood vessels is suddenly freed from its chemical state by alkalization, it has to make its way into the tissues by some mechanism, and the lungs are likely the available mechanism. It makes its way into the alveoli and is coughed up.

I do not possess sufficient ability to paint the dramatic picture of pulmonary edema, but a novelistic description of the attack and death from pulmonary edema is to be found in Emile Zola's *Fecondite*.

ESTHETIC PLASTIC SURGERY

By H. O. BAMES, M. D.
Los Angeles

DISCUSSION by George Warren Pierce, M. D., San Francisco; Howard L. Updegraff, M. D., Hollywood; William S. Kiskadden, M. D., Los Angeles.

GOOD looks are an asset of high economic value. In the modern business world, attractive personal appearance may rank equal or even higher than specialized ability. Marred or otherwise unattractive features represent a serious handicap. The striving for enhancement or maintenance of good looks is therefore evidence, not of an idle cult of beauty, but rather of a serious determination, born of necessity, to let no remedial defect stand between success and failure in the struggle for existence. Legitimate demand for this work being thus proved, the problem arises as to who is to meet the request for work of this kind.

It is a time-honored tradition of surgery that its one and only mission be the conservation of life or the restoration of function, with the paramount concern of securing this result in the shortest possible time. Of late, however, another factor has entered the equation, particularly in operating on exposed parts of the body, and judging by the present trend of dress, the field of observation is decidedly increasing. A blemish on the body may have a disturbing influence on the peace of mind of the individual and hence entitles the patient to relief. This holds good whether the blemish be congenital, acquired accidentally, or resulting from surgical intervention.

TWO TYPES OF PLASTIC SURGERY

Plastic surgery may be divided into two branches. The first type is reconstructive and has for its prime object restoration of function and only secondarily, restoration of appearance. It deals with gross deformities and involves all the elements of major surgery in its risks as well as technique.

The second type is esthetic plastic surgery, which has to do with correction of imperfection in figure and features and the creation of normalcy in respect to symmetry of contour and harmony of proportions. Its surgical problems are really minor ones. We frequently hear the expression "a good cosmetic result" when we really mean esthetic, for cosmetic refers to color and complexion only; things which may be purchased in the drug store or at the beauty shop, but not in the operating room.

QUALIFICATIONS REQUIRED FOR ESTHETIC PLASTIC SURGERY

1. Artistic talent, so that defects may be properly evaluated.
2. Sculptural ability that features may be harmoniously blended, a sense of proportion being of greater value than the measuring rod.
3. Adequate training in anatomy so that the contemplated alteration may be physiologically sound and functionable.

4. A specialized surgical technique having as its most important object that the intervention leave no scar.

HOW MAY SURGICAL SCARS BE RENDERED INVISIBLE?

A. By hiding the incision, placing it within areas normally covered by hair or within orificial surfaces.

B. By blending the incision with normal lines and folds of the skin, paralleling its grain or lines of muscular tension.

C. By following carefully a technique of wound treatment which has as its most important object that it leave no trace, the detailed steps of which are as follows:

Incision.—The incision is vertical through the skin, as this allows for the evenest coaptation of the skin edges; a slanting incision will frequently cause overriding with resulting humpy elevations on what should be a perfectly smooth surface.

Methods of Suturing.—All tension must be carried by the fascia, none whatever by the skin. In a long straight wound a buttonhole or a subcuticular suture will be satisfactory; in an irregular wound only interrupted suture will give good results. The sutures must be tied loosely that an occasional swelling may not cause it to cut through the skin. Sutures should not be as close together as possible, but as far apart as will still secure close coaptation.

Suture Material.—For the fascia, catgut, in strength and thickness proportionate to the density of the fascia it has to unite; for the skin, horsehair, dermal or similar product, the finer the better. Metallic clips are only satisfactory where the skin is thin and its edges easily raised.

Needles.—Noncutting for the fascia; cutting for the skin; the smaller and sharper the better.

Dressing.—A wet dressing with any mild antiseptic solution will most satisfactorily prevent serum accumulation and crust formation in the wound; after twenty-four hours, a dry dressing. There must be suitable fixation and splinting that the newly created shape may be properly safeguarded while healing takes place. A fair amount of pressure is necessary to prevent venous stasis and congestion.

Removal of the Sutures.—Sometimes we find a wound healed so perfectly that barely a line is visible, but bordering this narrow line is a double row of stitch marks, worse in appearance than a scar could be. In such a case the stitches were left in too long or were tied too tightly. When there is no tension on the skin and the skin sutures merely serve to secure an even coaptation of the margin of the wound, it is remarkable how quickly the sutures may be removed; in the eyelids, in twenty-four hours; nose, forty-eight hours; other parts of the face and neck, seventy-two hours.

ESTHETIC PLASTIC SURGERY OF THE FACE

Anesthesia is practically always by local infiltration of one per cent novocain with adrenalin

ten minims to the ounce. Adrenalin helps somewhat in hemostasis; effective control, however, is best obtained by pressure—this may be with a gauze sponge held in place for a few seconds or with a hemostat forceps; ligation is hardly ever needed. In wounds where bacterial control is only relative, catgut had much better be not introduced.

Absolute asepsis must be aimed at in reconstructive surgery, but such rigid procedure is seldom necessary in esthetic surgery. Where the hair is apt to interfere, it is clipped short and the area disinfected with two per cent tincture of iodine. All the rest of the face, including the inside of the mouth and nose, is satisfactorily prepared by being scrubbed with a gauze sponge soaked in a mild solution of antiseptic, my personal preference being potassium mercuric iodide, which is noncorrosive to instruments and well tolerated by the skin.

Alterations in the Shape of the Nose.—These never require any external incision. An incision is made through the septum, between the columella and the septal cartilage. By blunt dissection, the skin over the septum and over the nasal bones is undermined. If a hump is to be removed, this entrance will readily allow it to be removed with a chisel, the raw edges of the bone being made smooth by rasping. If the object is to raise the bridge of the nose, a piece of cartilage from the eighth rib can be satisfactorily introduced. If the nose is to be shortened and the tip elevated, a suitable section of the lower border of the septum is removed. Shortening of the soft parts is accomplished by extending this same incision laterally between the upper and lower lateral cartilages and freeing all the skin from the cartilage and bone. Pushing the tip up, we now find projecting into view the lower edge of the upper lateral cartilages. We trim away that amount which we find superfluous and hold up the tip of the nose by a strip of adhesive extending from the tip to well upon the forehead.

A mold made of stent, held in place by adhesive, will satisfactorily maintain the newly created shape. No sutures are necessary except perhaps in lining up the mucous membrane edges along the columella. Within three days, all dressing may be dispensed with. There is no packing or dressing in the nose, but it is cleansed several times a day with a mild antiseptic solution.

Ears.—Unduly prominent ears are not considered desirable features and frequently demand correction. This is best accomplished, not by cutting down the size of the lobe, but rather by laying it closer to the head. An elliptic piece of skin in back of the lobe and the adjacent area over the temporal bone is removed and the new skin edges sutured together. Where the spring of the cartilage makes the ear stand out too much at right angles, closer apposition to the head is frequently obtained more desirably by rotating the lobe forward or backward as may seem indicated, rather than by removing a piece of cartilage. Compression bandage for a week is advisable to take all tension off the stitches.

Scars of Age.—Operations to restore or maintain youthful appearance should amount practically only to the removal of redundant skin from the eyelids, chin and areas immediately adjacent to the lobe of the ear. So-called face-lifting operations should in no way involve any lifting of the muscles of expression, but should depend upon the tensing and smoothing of the skin overlying the muscles.

If the tension is placed on the fascia, the result may be more or less satisfactory and lasting. If the tension is on the skin, a good effect is rather transitory and greatly marred by a tendency to scar formation.

Eyes.—Bagginess around the eyes and crows-feet represent superfluous skin which has lost some of its elasticity; excision is simple, healing scarfree. In the upper lid, the incision line is placed where the lid doubles back on itself in opening the eyes; in the lower lid, it is placed directly under the lashes. A wet dressing for twenty-four hours is desirable; no further dressing is needed thereafter.

Warts, Moles, Birthmarks, Smallpox Pits, Acne Scars.—In the past these have received scant attention. Whether electrolysis, fulguration or excision should be employed, only the experience of the operator may decide. For smallpox pits, acne scars, and nevi, no remedy can approach the results which can be obtained by carbon dioxid snow repeatedly applied in slush form.

Scars.—Facial disfigurement frequently follows automobile accidents, flying glass being the chief factor; the wounds are deep, ragged, and seldom thoroughly cleanable. A wet dressing for twenty-four hours, leaving the wounds to be thoroughly drained, and repairing the next day will give much better alignment, less swelling, less danger of infection and less likelihood of oil, grease, or other material being retained in the wound, which later show up as most undesirable discoloration. In the case of old scars, excision and repair under the previously outlined technique, gives the best result. No defect of contour should ever be filled with paraffin in any form, as within a few years large disfiguring bumps grow around the injected material. Implantation of fat, fascia, or cartilage is the sovereign remedy.

ESTHETIC SURGERY OF THE BODY

Esthetic surgery of the body can only be performed under general anesthesia and requires observance of the rules of asepsis applicable to major surgery.

The shape of the body, referred to by the female sex more particularly as the "figure," may be quite satisfactory to its owner in all respects except for some localized area of abnormality.

The Bust.—The mammary glands may be rather large and grossly at variance with normal standards, or they may be merely pendulous, amounting, however, practically to dislocation of the organ. Re-position to normal can only be obtained by removing the excess fatty tissue, remov-

ing also the abnormal amount of glandular tissue, shortening the pedicle by plication, and transferring the gland back to its normal anatomical bed. The procedure which accomplishes this most satisfactorily may be stated as follows: With the patient in the upright position, the normal anatomical bed is outlined and suitably marked. In the center of this area a round section of skin corresponding in size to the nipple and surrounding areola is excised. The areola is circum-incised and the attachment of the gland from the skin in the old bed, as well as the new, is severed by blunt dissection with a hot towel. The gland, with its attached nipple, is transposed upward, the nipple is made to emerge through its new opening; the base of the gland is adequately secured with catgut and the loose amount of skin constituting the former bed of the gland is trimmed away in a line paralleling the lower circumference of the gland in its new location. Thus the only scar lines are rendered almost invisible, as the smaller incision blends with the outer margin of the areola and the lower with the lower margin of the curvature of the breast. Blood supply, nerve supply, and lactic ducts are not in any way disturbed by this procedure. As all subcutaneous dissection is with the hot towel only, the operation is practically bloodless. Excessive glandular tissue is removed in one or more sectors, whichever procedure may give the most normal shape to the gland. The sides of the sectors are united with catgut. Drainage for two days is desirable.

Abdomen, Hips, Thighs.—Regional lipomatosis of the abdomen, hips, or thighs constitutes another factor which may require attention on esthetic grounds. There is no other remedy except surgery, but very definitely be it said that surgery is never justified in general obesity.

Of utmost importance is the designing and marking of the contemplated change; the sculptor's rather than the surgeon's viewpoint should govern in designing. The patient must be in the upright position and the surgeon should thoroughly familiarize himself with the changes in contour brought about by changing from the upright to the recumbent posture, which obtains during operation. After the skin is incised, all further dissection is with the hot towel and extends clean to the aponeurosis of the muscles. Where lateral undermining is needed to remove more fat, approximately half an inch of fat should be left adherent to the skin, otherwise that area of skin will look dry and shriveled. Drainage to control serous oozing is very important, as firm compression cannot always be satisfactorily maintained; short pieces of rubber tissue through the sutures down to the aponeurosis, placed about four inches apart, have been found most satisfactory.

Closure of the wound is by a continuous buttonhole dermal suture; fairly deep bites are

taken to prevent dead space; as fat is slow in forming a solid union, these sutures are left in place for two weeks; stitch marks in these ordinarily unexposed areas being not considered of consequence compared with the more desirable contour gained by the operation.

Recurrence is practically impossible if all the fat, clear down to the fascia, is removed; shock is very minor, in spite of the frequently very extensive resections.

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DISCUSSION

GEORGE WARREN PIERCE, M. D. (490 Post Street, San Francisco).—Doctor Bames' paper is a timely one. The public today demands this type of surgery from both the social and economic viewpoints. The pseudo-specialist and the advertising charlatan have been quick to offer a dubious service, with the result that this type of surgery has received considerable discredit from too frequent unfortunate results. It is incumbent on the medical profession to meet the demand with properly trained specialists. This type of work calls for exactness of technique and mature judgment. No mistakes can be made, lest they become a lasting monument to inefficiency.

It is interesting to note almost a change of character which often comes to patients after the correction of a facial deformity, such as a deformed nose; increased attention to personal appearance and dress, an infusion of confidence evident in bearing, and a losing of sensitiveness which sometimes amounts to an inferiority complex. It has been my observation that patients are more sensitive of deformities of the nose than of any other feature of the face.

Doctor Bames' outline of technique is of interest. While each surgeon may vary his method, the basic principles must be the same. I find, however, that my results have been better in fresh wounds of the face as occur after automobile accidents, if complete debridement is done as soon as possible and primary suture with small silkworm-gut drains is used.

✱

HOWARD L. UPDEGRAFF, M. D. (6777 Hollywood Boulevard, Hollywood).—I am glad to see that Doctor Bames draws a distinction between reconstructive and esthetic plastic surgery. There is a very definite place for esthetic plastic surgery. Most of the specialties began, so to speak, in most humble manner. It might almost be said that the surgeon of today was the barber of yesteryear; the obstetrician was the midwife; the genito-urinary specialist the venereal disease exponent, who even today advertises in the public comfort stations in England. The radiologist is still within our memory the experimenter of the 1890's, while the physiotherapist is trying to shake himself loose from the pathists who are cashing in on his stock in trade. Oculists were preceded by men who vended spectacles, the neurologists drove out the devils of a disordered mind, and so on with all the specialties until none of us, if we are inclined to be genealogical, but see a professional family tree of which we speak little; that is, if we would go back and point out some of the more unfavorable beginnings.

Doctor Bames, in his paper, has shown courage in advocating "face-shifting" and "contour correction," surgical procedures which have at the hands of inexperienced operators aroused much grief. I have not found metal clips or delayed repair following trauma of advantage. Doctor Bames stressed an important fact in the avoidance of catgut in repair where there

is a possibility of infection. Also one of the secrets of nonscarring is the use of compression rather than sutures to control skin hemorrhage.

✱

WILLIAM S. KISKADDEN, M. D. (803 Wilshire Medical Building, Los Angeles).—I desire to endorse what has been brought out both in Doctor Bames' paper and in the discussion, regarding the present status of plastic surgery. Unfortunately the free use of the phrase "plastic surgery" by charlatans and beauty parlors has brought to this new and important specialty an undeserved association with quackery.

Doctor Bames has wisely pointed out the importance of avoiding skin tension. We know that it is certainly one of the most prominent predisposing factors in keloid formation. In the secondary repair of old scars adequate undermining of the skin will often permit closure of large raw areas without tension. If keloid formation is feared or has previously occurred, the use of fractional skin doses of x-ray, with accompanying compensating lapses of time will be found of value. This treatment should, however, be instituted early.

I would like to stress the value of light dressings that allow diffusions of air through them and to the wound. The trauma of operative procedure may frequently irritate skin edges and if a thick dressing is reinforced by adhesive, the tendency for bacterial incubation in a warm, moist medium is greatly enhanced. In harelip surgery, where the baby's hands are restrained, we dispense with all dressings and apply only a thin coating of yellow oxid of mercury.

✱

DOCTOR BAMES (Closing).—The discussion brought out two points:

1. An endorsement of the contention that operations and wound treatment should receive consideration from the esthetic as well as the surgical viewpoint.

2. That there is a difference of opinion on methods of getting results which meet both requirements.

It is evident that an interchange of experiences in this field is decidedly apropos. If this paper succeeds in arousing such action, it will have more than served its purpose.

INFECTIONS OF THE ETHMOID LABYRINTH*

By FERRIS ARNOLD, M. D.

Long Beach

DISCUSSION by F. H. Linthicum, M. D., Los Angeles; Isaac H. Jones, M. D., Los Angeles.

SOME of the most interesting problems found in the field of otolaryngology are those associated with pathologic changes of the ethmoid labyrinth. Great diversity of opinion exists as to what constitutes the proper interpretation of the findings and the treatment of those conditions. One must learn to evaluate properly all factors entering in a given case and to keep primarily in mind the thought of what is best for the patient's welfare. With these elements always in mind, needless or harmful treatment will be avoided.

ANATOMY

The ethmoid labyrinth, anatomically considered, is the central point in the nasal accessory

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sinus system. Therefore it is nearly always the site of pathologic processes when other sinus infections are present.

The ethmoid is subject to many anatomical variations. There may be accessory cells in various locations, such as the large cell which is frequently encountered in the tip of the concha media. Another frequent variation is that of a large ethmoidal cell directly in front and above the sphenoid itself. These accessory cells are often infected and failure to exenterate them will cause a persistence of symptoms. The openings of the ethmoid cells into the nose are separated into two groups by the plate of the concha media; the posterior group of ethmoid cells open above and posterior, and the anterior between the concha media and lateral wall of the nose. Secretion appearing in the nares between septum and concha media comes from the posterior group. Secretions appearing between the concha media and lateral wall of nose in middle meatus come from the anterior group.

The outer wall of the ethmoid is formed by the orbital plate and by the mesial wall of the maxillary antrum. This plate is very fragile and easily penetrated.

The brain fossa has an intimate relation with the roof of the ethmoid labyrinth. The bony roof of the ethmoid joins the cribriform plate, but the cells are not in contact with this plate, the bone here being rather heavy. The cribriform plate is the roof of the common meatus. The most dependent portion of the ethmoid labyrinth seen in inspection of the nasal cavity is the bulla ethmoidalis. This appears as a rounded protuberance just under the concha media. The unciform process has an enclosed cell, sometimes quite large, termed the agger nasi. This is to the outer side of the bulla on lateral wall. Occasionally there is a large ethmoid cell just under the frontal sinus. Swelling of this often causes occlusion of the nasofrontal duct simulating a frontal sinusitis.

A thorough knowledge of the regional anatomy is necessary to successful operation upon the ethmoid. One should take into consideration the various anatomic variations of this sinus and look for them while doing the operation.

The ethmoid labyrinth is the embryologic center of development of the sinuses, the others being outgrowths of it. Because of its relation to the other sinuses, consideration must be given to the ethmoid labyrinth as a factor in all sinus infections. More or less involvement of the ethmoid is always present in all sinus infections. Proper treatment and results in sinus infection are in ratio to the consideration of the ethmoid factor. Nasal infections usually have as a primary site the ethmoid labyrinth, and it is also most often the last point of infection to be cleared up. Shambaugh¹ states: "Surgical treatment of inflammatory processes of any or all nasal sinuses includes to a greater or lesser extent operation upon the ethmoid labyrinth."

PATHOLOGY AND SYMPTOMS

Colds. The most prominent etiologic factor in ethmoid infection is the so-called common cold. This is an acute catarrhal infection involving the mucous membranes of the nasal passages. Acute catarrhal ethmoiditis is frequently found as an associated condition. In this the mucous membrane of the ethmoid region becomes edematous and intumescent. There is a profuse serous exudate which causes partial or complete occlusion of the ostia of the ethmoid.

Examination of the region of the middle meatus shows the characteristic swollen appearance of the undersurface of the concha media, unciform process and bulla ethmoidalis. There is considerable mucoid secretion seen in the middle meatus. Small mucous polyps may be seen covering the surface of the mucous membranes of the region.

Influenza. Another type of acute ethmoiditis is that seen during epidemics of influenza. In this type the discharge is more watery and the membranes of the nares have a deeply injected appearance. The conchae are greatly swollen and cause occlusion of the nasal passages. The pain is severe, radiating along the course of the seventh and fifth nerves. Accompanying the process there is often an otitis with reddened tympanic membrane and injected canal walls.² There may be temporary visual disturbances due to inflammatory processes around the optic tract.

Acute Catarrhal Ethmoiditis.—The symptoms of acute catarrhal ethmoiditis are those which arise because of insufficient drainage and ventilation of the ethmoid cells. There is a feeling of fullness or pain between the eyes. There is a great deal of sneezing, together with a profuse discharge, which at first is thin and watery, but soon becomes thick and tenacious. The symptom of sneezing is characteristic of ethmoid involvement, being due to irritation of the sensitive nerve endings in that region. Due to the intense edema of the structures, breathing through the nose is interfered with. There is profuse lachrymation and swelling around the orbital rim. The history given is that of a persistent cold.

Empyema. At times the condition progresses and the drainage of the region is so interfered with that an empyema of the ethmoid results. The symptoms are those of pressure, the pain in some cases being quite severe. There may be softening of the bony walls around the orbit with production of edema and later a fistula at the canthus.³ Marked exophthalmos may be present. This condition may simulate that of a cavernous sinus thrombosis.⁴ Rarely there is extension backward through the sphenoid ostia and upward through the cribriform plate, producing meningeal symptoms or even brain abscess. Basilar infection may result, causing symptoms similar to an encephalitis.⁵ The suggestion is made that there is a possibility of the encephalitis which at times follows influenza having as an associated factor, involvement of the posterior group of sinuses. A recent report by Pfahler⁶ attempts to demonstrate by skiagraphs basilar involvement and bony

changes due to chronic posterior group infection. It is entirely within presumption that this may happen in rare instances, but one would hesitate to operate on these cases from the skiagraph findings alone.

Empyema of the ethmoid usually have as sequelae, antrum, and occasionally frontal, infection. The latter is sometimes complicated by closure of the nasofrontal duct by swollen ethmoid cells. Here the symptoms are quite severe, pain with marked edema of eyelids being present.

The empyema may become a chronic condition attended by a more or less continuous purulent nasal and postnasal discharge of offensive odor and acrid character; the postnasal discharge causing in turn a severe pharyngitis and laryngitis or a tracheobronchitis. The history in such cases is that of a profuse discharge upon arising in the morning, accompanied by coughing and expectoration until the night's accumulation has been gotten rid of.

Chronic Hypertrophic Ethmoiditis.—The common chronic type of ethmoid involvement is that of chronic hypertrophy. This is a nonsuppurative condition, but may have a secondary infection superimposed. In the hyperplastic type the mucous membranes undergo a polypoid form of degeneration. Later the bony structure itself is the site of absorption and proliferation of new bone. This is cystic, soft, fragile bone. The underlying structure of bone becomes eburnated resembling in structure bone in which arthritic changes have taken place.

The characteristic symptoms of this type are frequent sneezing and profuse watery, acrid, irritating discharge. Frequently a troublesome cough, due to tracheobronchial infection, is present. Complaint is made of a stuffy feeling in the nose or of complete nasal obstruction. Patient may state he has had a persistent cold or catches cold very easily. The mucous membrane of the nose seems to be sensitive to proteins such as flowers and dust. This type of ethmoid infection is often present in hay fever patients. Many cases of hay fever do not have the physical findings of hyperplastic ethmoiditis, but in those cases that do, surgery is of great benefit.

Certain asthmatic conditions have an associated hyperplastic ethmoiditis. It is in these cases that surgery gives its best results. Not all cases of asthma are due to or have hyperplastic ethmoiditis or ethmoid infection of any type. Careful study must be made of each case before determination can be made as to the advisability of ethmoid exenteration. Various protein tests should be made by one who is familiar with the allergic reactions. Careful physical examination should be made by a competent internist. It is believed that only with the closest coöperation between family physician, internist, and rhinologist, can results be had in these cases. There is no one causal factor in the etiology of asthmatic conditions. Treatment should not cease with the operation.

Neuroretinitis. The problem of neuroretinitis is one in which the rhinologist is much interested. Frequently there is an ethmoid infection factor present in these cases, often of the hyperplastic type. Detailed study must be made of these cases to determine whether or not operation will benefit. There is no one diagnostic aid that will help. Of course, in those cases where definite suppurative processes can be found, operation is imperative. Those cases with absence of any suppurative processes present a difficult proposition as to advisability of operation. These cases are those of the hyperplastic type usually. The evidences here of infective processes may be slight, yet the patient may have a definite nerve involvement. The decision in these instances should rest upon the question of the severity of the sinus infection and the degree of the nerve involvement. Where either factor is present in severe degree the case should be operated. In case of mild sinusitis and retinitis expectant treatment is advisable, the case being carefully observed. It is a well-known fact that many neuritic and inflammatory conditions in other parts of the body subside without radical treatment. It is therefore reasonable to expect that the mild cases of optic nerve involvement will recover. All cases of optic neuritis should not be subjected to such a formidable operation as sphenoid and ethmoid exenteration. Those cases of sudden onset, with definite sinus disease, central scotomata and loss of color perception should be operated without delay because here the damage to the nerve may be permanent if operation is delayed. Those cases that present themselves with history of old persistent nasal discharge, gradual color loss and fundus findings of an old process should be gone into carefully and each case decided as a clinical entity. Simply because one patient responds wonderfully to operation is no reason why the next patient should have operation. This is a wholesome thought that recurs as we see patients who have had ill-advised nasal operations performed by those who have not attained a proper appreciation of the limitations of surgery.

Luetic infection of the ethmoid. This condition presents a mixed hyperplasia. There may be necrosis of the ethmoid cells with extension into the orbital plate. Rarely there is reported a case of gunma of the concha media with extension into the ethmoid.

Mucocele. Occasionally physicians who do eye work see a mucocele of the ethmoid region. This is present in an anatomic variation of the usual ethmoid cell, the cell being much larger and placed laterally. Marked exophthalmos may be present. Sometimes it is difficult to differentiate from a tumor of the orbit.

Atrophic form of ethmoid labyrinth disturbance. Here the changes are usually associated with atrophic processes in the nasal mucous membrane and bony framework. In this the lateral bands of the pharynx are deeply injected. There are thick mucopurulent crusts present in the oropharynx. A condition of pharyngitis sicca, as is also present in chronic sphenoid sinus infection,

is often associated. There are deposits on the vocal structures giving rise to an irritating dryness and hoarseness. Marked ozena is often a sequela. This is an unfortunate complex for the patient, and any promise of relief is gratefully received.

DIAGNOSIS

The diagnosis of the suppurative types of ethmoid infection should present no especial difficulty. The symptoms are clear and the physical findings distinctive. The source of the discharge is located by anterior and posterior rhinoscopy. The nasopharyngoscope can be used to advantage. Skiagraphs are helpful but not essential.

The hyperplastic type is usually easily diagnosed. Here the presence of the polypoid tissue in the region of the middle meati is seen. Post-nasal examination by mirror discerns the polypoid degeneration of the posterior ends of the conchae. The lateral bands of the pharynx may be found injected.

Other types of cases in which the physical findings are not especially distinctive are more difficult of diagnosis. It is in these cases that carefully made roentgenograms are of great value. Granger⁷ and others have established special technique which often helps one to discover posterior group infection. It is very essential that we should familiarize ourselves with the proper interpretation of the roentgenograms of the area. We should not be compelled to take as final the report of findings alone. Injection of the sinuses with opaque material, such as iodized oil preparations, is of great value in securing a better estimate of the situation.⁸

TREATMENT

The treatment of ethmoid disease presents a problem. The anatomic situation of the ethmoid labyrinth, together with its surrounding structures, makes the surgical intervention difficult. It is necessary to completely remove the foci of infection, but it is even more important not to destroy nasal tissue unnecessarily. Many of the poor results obtained are due to unskilled operative procedures in the nasal passages by those who do not have a proper appreciation of the anatomy and physiology of the region. Atrophic rhinitis, loss of smell, persistent fistula, and even damage to orbital or cranial contents may result because of careless surgical work of the ethmoid region. In rare cases only is it necessary to remove a large portion of the middle turbinal body. In many cases even resection of the concha media is not needed. Where the naris is narrow, simple high submucous resection, together with infraction of the concha media toward the septum will give ample space to exenterate the ethmoid. Cases that have marked deviation of the septum are most likely to have the most ethmoid involvement on the side with the free space. This is because of the marked hyperplastic changes that have taken place in the region. This hyperplasia is secondary to a compensatory hypertrophy which occurs in nature's effort to have the unobstructed side perform the physiologic functions normal to both sides.

Entrance into the ethmoid labyrinth is obtained by opening either the bulla or the agger nasi cell. Exenteration then can be done backward, using a Gruenwald or Knight forceps, care being taken to stay in the midline in both meridians. This will obviate the danger of opening into the orbital plate or superiorly the cribriform plate. The exenteration is carried backward until the rather firm wall of the sphenoid is met. The anterior and lateral group of cells can then be searched out and exenterated by use of Mosher's curet or a small Gruenwald. Anatomical anomalies should be looked for and exenterated, especially the large cell often found just under the frontal. In cases that have retrobulbar symptoms the layer of cells around the inner and posterior rim of the orbit should be looked for. There is little danger of injuring the orbital contents if one is cautious and does not use force in pulling out tissues. There is a rather thick layer of orbital tissue between the eye itself and the ethmoid. Care should be taken not to unhook the tendon of the oblique muscle of the eye while exenterating the superior cells.

Anesthesia.—It is essential to success to have perfect anesthesia and hemostasis. Ephedrin added to the anesthetic material used is slower in action than adrenalin, but the effect is more lasting. A combination of both is quite useful. The choice of anesthetic is left to the individual operator. Some are using butyn; some use cocain paste; some, a 2 to a 20 per cent solution of cocain. It is believed that more toxic absorption is obtained from packs of cocain solution than from cocain paste topically applied. One can regulate the amount of paste, but the amount of absorption from packs is an unknown quantity. A preliminary dose of one of the barbitol derivatives is useful in preventing shock, it being the physiologic antidote for cocain toxicosis. Nasal packs may be used after operation if severe hemorrhage occurs, none being used otherwise, as it is not believed wise to allow retention of the secretions. In the best interests of patient and physician, patients requiring exenteration should be hospitalized. Here any emergency measure can be easily carried out. The practice of carrying out operative procedures in the office and returning the patient to the home, or even to the street, is undesirable. Contact with the patient is lost and makes possible annoying and troublesome incidents.

Complete exenteration should be carried out in those cases where the indications are present. In the simpler cases, infraction of the concha media with opening into agger nasi and bulla ethmoidalis is all that is needed.

Experience with radium in the hyperplastic types has not been satisfactory. Its use in malignancies is indicated, as is diathermy. Myerson has reported some interesting work along this line.

In the simpler types of acute catarrhal ethmoiditis, careful shrinking of the nasal membranes with a suitable agent gives relief. Weak solutions of cocain with addition of small amounts of ephedrin or adrenalin have given best results. Adrenalin or ephedrin alone have not been so satisfactory, the secondary swelling being greater than the primary after a short interval of time.

Nasal irrigations should, in the acute cases, be looked upon with caution. Many times one sees tubotympanic processes set up by unwise irrigation.

The use of vaccines and general medication does not come within the scope of the specialty. If the patient is in need of general treatment he should be referred to the family physician, together with any suggestion toward treatment. We should be careful not to invade the field of the general man. It is his place, not ours, to administer vaccines, drugs, etc. The use of the various antiseptics in the treatment of ethmoiditis has not been satisfactory. The mild silver preparations do have some astringent effect, but it is not believed that the condition is helped by them.

It is desirable to mention in this connection the treatment of ethmoiditis by the external operation. One sees at times a patient with fulminating pansinusitis where the ethmoids are equally involved with other sinuses. These patients are often extremely ill, with high temperature and evidence of a very severe general sepsis. Delay in operation may result in fatal issue because of the rapidity of the destructive processes. One should not temporize in these cases by minor operative procedures. Complete exposure of the infected areas should be the aim. The external route is the best and quickest method to be undertaken. All bony walls of sinuses involved should be laid open and drainage established. The type of external operation should be chosen that will best accomplish this purpose. Here again supportive measures are of the most importance. The patient should also be under the observation of a competent internist. Transfusion should be done early if indicated. These massive infections seem to be of two types, those caused by staphylococci and those of mixed infection with the streptococci hemolyticus present. The latter patients usually present themselves during influenza epidemics.

Ethmoiditis in children is common.⁹ Usually it is of the mild catarrhal type and responds to local measures. In the purulent type free opening of the bulla is usually sufficient. This of necessity must be done under general anesthesia. Any or all of the types and symptoms found in adult life may be present in children. Many cases of tubotympanic disease have ethmoidal infection as a casual factor.¹⁰ Treatment should be prompt and persistent.

CONCLUSIONS

Ethmoiditis is a frequently encountered condition and may be of grave consequence if untreated.

Careful survey of each patient should be made as to advisability of surgical treatment. Surgery of the posterior sinuses should not be recommended unless definite pathological conditions can be clinically established.

Surgery of the ethmoid region should properly be performed in hospitals.

Most cases of mild infection will readily clear up under proper local treatment.

Collaboration between internist, roentgenologist, family physician, and rhinologist is very desirable.

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DISCUSSION

F. H. LINTHICUM, M. D. (914 Pacific Mutual Building, Los Angeles).—In a survey of the highly involved subject of infection of the ethmoid labyrinth, Doctor Arnold's excellently presented plea for conservatism in this field of our specialty is timely. We have all realized that present-day sentiment is turning away from the radical procedures which have been in vogue in the past, in favor of the more conservative consideration and treatment of sinus disease in general, and ethmoid infection in particular.

So-called preventive medicine has claimed the attention of workers in many specialties—perhaps as little in ours as in any other. It would seem that an opportunity is offered in this field in the subject under discussion.

All acute sinus infections have a tendency to heal spontaneously. Such infections become chronic in two ways. First, as the result of repeated acute attacks, which bring about changes in the mucous membrane, resulting in destruction of the ciliated epithelium, accompanied by cellular infiltration, or the deposition of scar tissue. Too frequent acute attacks may also bring about occlusion of the secretory ducts, giving rise to hyperplastic formations and the presence of polypi. Second, because of mechanical or obstructive causes. These comprise anatomical anomalies, polypi, enlarged turbinates.

It is probable that the groundwork for much of adult ethmoid disease is laid through the neglect of the so-called simple head colds which occur in childhood and early adult life, or by failure to correct the various intra-nasal or pharyngeal obstructions which play a part in the susceptibility to these colds. It is an axiom that is too often overlooked, that the ventilated nose will usually take care of its own acute infection except in the presence of chronic diseases. The con-

gestion brought about to the mucous membrane of the nose by an acute coryza is one arc of a vicious circle. The swollen mucous membrane occludes the sinus orifices and the ensuing sinusitis will not permit the congested mucous membrane to subside of its own accord. Neglect of repeated insults such as these to the sinus groups eventually results in destruction of or pathologic changes in the lining mucous membranes, which tend to give rise to chronic ethmoid or other sinus disease.

An acute rhinitis cannot be cured overnight by any method, but certainly the nasal passages which are kept ventilated during the course of an acute infection will right themselves much more rapidly than a neglected nose, and the shorter the course of an acute infection the less chance of permanent damage to the ethmoid labyrinth.

Just as important from the standpoint of ethmoid and other sinus disease is the removal of mechanical obstructions to nasal ventilation as early in life as is consistent with safety. These two groups of the more common causes of chronic disease of ethmoid are correctable and to an extent preventable; to correct them means to persuade the specialist to remove mechanical obstructions in the patients whom he sees late in childhood or early in adult life and to educate the parent in the proper way of taking care of an acute coryza and not to say, "The child just has another cold."

ISAAC H. JONES, M. D. (1930 Wilshire Boulevard, Los Angeles).—It seems to me that Doctor Arnold has given a balanced and proper valuation of medical and surgical treatment of ethmoiditis. It is practically impossible to generalize on such a subject. Such a very few years ago there was no ethmoid surgery—or, for that matter, no tonsillectomy or submucous resection of the septum. All are contented with the rather uniformly satisfactory results of operation on the tonsils and the septum. It is such a different matter with the nasal sinuses, particularly the ethmoids. About two decades ago careful anatomic studies of the sinuses caused us all to feel that the sinus problem might be solved. For a long period nasal operations were performed for anatomical reasons only. The leaders in rhinology have all felt in the past few years that much of the radical surgery of the sinuses has disregarded essential physiologic facts. We all see many patients who on the one hand are uncomfortable with pus and crusting, or on the other hand suffering neuralgic pain which is most difficult to relieve. Much sinus surgery is surely necessary and on the whole satisfactory, but this is more true of the maxillary antrum and less of the sphenoid, frontal and ethmoid. The ethmoid constitutes such a honeycomb of cells of such varied size and structure and interrelation, that the establishment of even adequate drainage is difficult without radical exenteration. Recently, in cases of old and extensive involvement of maxillary antra and ethmoids, we removed the ethmoid cells through canine fossa approach. From the anatomic standpoint this is all very well, but one must wait for many months before one can say that the end result is satisfactory. It is very easy for us to say that all necrotic bone and polypoid tissue must be removed, but it is difficult to limit any work on the ethmoids to such pathologic tissue. We are surely unable to avoid also removing a certain appreciable amount of healthy bone and valuable mucosa with its invaluable ciliated epithelium. After any radical operation, one then awaits for the final result with no great assurance of a satisfactory outcome. Personally, if I were afflicted with ethmoiditis, chronic, I would wish prolonged local care before any surgery and then, if unavoidable, a most modified form of surgery; it is always possible to remove more and more, but it is not possible to restore structures that have been removed.

It is intriguing to consider what the bacteriophage will come to mean to us. It will surely meet a definite need, if its action proves to be applicable to sub-acute or chronic infections of the ethmoids or other

sinuses. D'Herelle first noted that a test tube of culture media clouded by bacterial growth would become clear upon the addition of a certain strain of bacteriophage. This spontaneous bacteriolysis has occurred in cultures of various forms of staphylococcus—not in streptococcus. Schultz of Palo Alto has reported such work at this meeting. To be sure, we can never expect that any bacteriophage can restore degenerated tissue. However, if local application to the sinuses can bring about a prompt local bacteriolysis, we do know what a remarkable recovery is possible in tissue, once the bacterial factor is eliminated. It is encouraging, in this connection, to know that the most usual organism in the infected nasal sinus is the staphylococcus.

✽

DOCTOR ARNOLD (Closing).—Doctor Shambaugh would be very gratified, I am sure, if he could be here and listen to the note of conservatism that is predominant. Those who are sponsors of postgraduate instruction in the specialty are teaching that surgery should only be resorted to when other measures have failed, and that when it is performed the nasal tissues should be left in as near a normal condition as possible, so that physiologic functions will not be destroyed.

POLIOMYELITIS*

A REVIEW OF THE LITERATURE

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EARLY EPIDEMICS

THE first big epidemics of poliomyelitis were reported from the Scandinavian countries, that in Sweden being described by Bergenholz in 1881. As early as 1840 Heine had first described the paralytic form as a separate disease entity, but it was not until after the second Swedish epidemic in 1887 that Medin recognized the early and preparalytic forms. From this starting point in Sweden, outbreaks were noted in Norway, in Germany, in Austria, and then in the United States in 1907. Another severe epidemic was reported in this country in 1916, principally in the State of New York.

These outbreaks stimulated much research both here and abroad, especially by Flexner and his associates at the Rockefeller Institute and by Landsteiner, Levaditi, Leiner and V. Wiesner in Europe. During this period it was experimentally shown that the disease was due to a filterable virus and that it could be transmitted from monkey to monkey by different routes of inoculation, producing clinical poliomyelitis. It was also demonstrated that the serum of a recovered monkey was capable of neutralizing an infective dose of virus in vitro.

RECENT EPIDEMICS

After the first output of experimental work on poliomyelitis, interest seemed to wane, until it was again aroused by the occurrence of fresh epidemics throughout the world. This review is therefore dealing largely with the most recent information published during the past five or six years.

According to the 1930 report of the League of Nations,¹ the most important epidemics of polio-

* From the George Williams Hooper Foundation for Medical Research, of the University of California, San Francisco, California.

myelitis since 1924 have been in England in 1926 to 1927, with 2191 cases and 255 deaths; in Germany in 1926, especially in Saxony, with 587 cases and ten deaths; Roumania in 1927, lasting until 1929, with 2635 cases and 300 deaths (11.38 per cent); in the United States in 1926 and 1927, when 10,151 cases were reported, with a fatality rate of 21 per cent, California, Massachusetts and Ohio suffering the most; in different Canadian provinces in 1927, 1928 and 1929; New Zealand in 1925, with 1319 cases and a mortality of 13.1 per cent, and in Iceland in 1924, with 463 cases and 89 deaths.

REPORTABILITY

Wherever the disease has become prevalent, measures are then undertaken to make it reportable. There is obligatory notification in most of the civilized countries of the world, except in Czecho-Slovakia, in Turkey and in Japan. From the statistics gathered, it is shown that the disease is a serious one with an average death rate of 12 to 13 per cent.¹

STIMULATION OF RESEARCH IN DIFFERENT SECTIONS

As a result of these epidemics, different commissions have been appointed for investigation and special sums of money have been donated for further experimental work.

In the United States, the Harvard Infantile Paralysis Committee, under the direction of Doctor Aycock in Boston, has done most effective work throughout Vermont and Massachusetts. A commission was also formed to aid in the Roumanian outbreak and one also for the Canadian.

In 1928 a large donation, known as the Milbank Fund for Research on Poliomyelitis, was distributed in the United States to Doctor Jordan at the University of Chicago, to Doctor Gay's laboratory at Columbia, and to Doctor Park of the New York Public Health Department, while the Lister Institute in London and Bordet's laboratory in Belgium have also been recipients abroad. Separate funds have been given in the United States for this special study, including that given to the University of California in 1928. The Rockefeller Institute has also continued with the same problem. With all these workers in the field something of interest should be forthcoming.

EPIDEMIOLOGY

Poliomyelitis is a disease mainly of the temperate or colder climates and becomes less prevalent nearer the equator. At the same time it also has a seasonal variation, being more prevalent during the summer and autumn than the winter or spring, although sporadic cases are occasionally reported for the latter seasons. This seasonal variation holds true for the southern as well as the northern hemisphere, as shown by Aycock.² In Australia and New Zealand the morbidity curve attains its peak in February and March, when the climatic conditions correspond to ours for August and September.

Aycock³ has shown that the age distribution of poliomyelitis corresponds to that for measles and for diphtheria; that there is a greater preponderance of cases in the younger age groups in urban than in rural communities for all three diseases, and that the case incidence in the various age groups is directly proportional to the concentration of the population. In measles the age distribution is determined by immunity from an attack of the disease, while in diphtheria it is determined largely by subclinical immunity. Reasoning from the similarity of the age distribution of poliomyelitis, measles and diphtheria, Aycock deduces that the age distribution in poliomyelitis is dependent upon immunity, largely subclinical. He shows that although poliomyelitis has a lower incidence in the southern United States than in the northern, the age distribution is of the same order in both sections. He believes this an indication that immunization in the South is just as rapid as in the North and in fact he asserts that from the age standpoint the virus may spread with even more rapidity in the southern states. Therefore, early infection in the South may account for the relatively more extensive subclinical immunization.

Since it is evident that in an epidemic the disease is irregular in its attack upon individuals, it is therefore quite probable that a widespread immunization, especially in urban districts, must occur early in life, either due to subinfective doses or to an abortive attack of the disease.

In a recent paper Aycock and Kramer,⁴ (1930) give experimental evidence to show that serum from a group of adults in a southern population was capable of neutralizing the virus in vitro. Neutralization occurred with eighteen out of twenty-one serums from individuals giving a negative history of poliomyelitis.

In another article⁵ the same authors give further observations concerning immunity to poliomyelitis as shown by neutralization tests in monkeys. They found that neutralization in vitro occurred with both monkey and human convalescent serum, with serum from immunized monkeys and also from a certain number in a group of normal individuals. Normal monkey serum was always inactive against the virus. They believe that the "tests in normal individuals are in conformity with and extend previous observations to the effect that a widespread immunity to poliomyelitis exists among individuals not known to have had the disease. Additional evidence is afforded that this immunity originates in exposure to the virus and, from the extent to which it occurs and the order in which it develops, that the virus spreads by person-to-person contact."

Because of these observations, Aycock apparently discards his previous hypothesis of "autarcesis,"² a term used by him to designate a certain hypothetical physiological activity of the body which might influence resistance to poliomyelitis, in counter distinction to that state of immunity provoked by the disease itself.

METHODS OF PROPAGATION

It has been generally accepted that the intranasal route is the usual one for infection with poliomyelitis virus, as shown by Flexner⁶ and his associates. Recently, however, several men have implicated the intestinal tract as another source of entrance. Kling,⁷ (1929), in an extensive study of the epidemics in Sweden, Saxony and Roumania, believes in the water-borne nature of the virus. This is discredited by others, since the mode of transportation, in Sweden especially, is mainly by water, and also because Kling and Levaditi have not been able to demonstrate the virus in water or in milk.

Aycock⁸ reports that the virus may be transmitted through milk, as an infrequent means of infection, basing his opinion on the results of studies on two American epidemics and one at Broadstairs, England. However, he does not believe that the virus is taken in through the digestive tract itself, but rather that it is absorbed by contact with the nasopharyngeal mucosa.

Kling, Levaditi and Lepine,⁹ (1929), on the other hand, have given experimental evidence to show that the virus may produce the disease when given a monkey by stomach tube or by injection into a loop of the ileum. However, this result could only be obtained when a particular variety of monkey, the cynomolgus, was used.

Clark and Schindler,¹⁰ (1930), at the University of Wisconsin, have recently reported their ability to concentrate the virus by distillation in vacuo and were able to utilize this method with the feces of monkeys fed virus suspensions. The virus was found to pass unaltered through the intestinal tract.

Although poliomyelitis is undoubtedly transmitted by direct contact in many instances, yet it is usually a rare occurrence when more than one member of the same family contracts the paralytic form of the disease. Aycock¹ believes if several members of the family have poliomyelitis that there is probably a common source of infection. In the Roumanian epidemic¹ it was found that the number of families in which more than one case occurred simultaneously represented only 12 per cent of the total number of families infected. In the 1927 outbreak of Alberta, Canada, Jenkins¹² reports that out of 189 families, fourteen had two or more definite cases of poliomyelitis. If the possible non-paralytic cases were included the number would reach forty-seven families out of the 189.

A common source is therefore suggested. While most people implicate a healthy carrier as this source, yet there is also a possibility that milk or even water may play some rôle.

ETIOLOGY

Except for the work of Rosenow, it is generally accepted that poliomyelitis is due to a filterable virus. Rosenow¹³ considers a small gram-positive diplococcus as the main cause of the disease. He reports having found it in the spinal fluid of

both human and monkey cases. He also has isolated it from the brain and cord.

However, in 1929, Olitsky, Rhoads and Long¹⁴ at the Rockefeller Institute, repeating Rosenow's technique and using his type of medium, failed to cultivate streptococci from cases of experimental poliomyelitis. They also showed that the yeast medium he used may naturally contain streptococci, and that this organism may be isolated occasionally from the brain of a normal monkey.

Fairbrother,¹⁵ (1929), published an extensive report on coccal organisms in poliomyelitis, showing that while they may be occasionally isolated from the tissues of monkeys with the disease, yet similar cocci may be obtained from normal animals or from those having other ailments. These cocci were shown to have no etiological relationship with poliomyelitis, but belonged to a group of air micrococci.

Clark and Schindler¹⁰ also reported that while poliomyelitis virus will survive the high salinity of their concentrated suspensions for from four to five months, the streptococci will not live for over one month. From the work of these men, it seems evident that streptococci need not be considered as a specific factor in poliomyelitis.

Landsteiner and Levaditi¹⁶ early showed that the tonsils may harbor the virus, and more recently Aycock and Luther¹⁷ have reported a relationship between tonsillectomies and the onset of poliomyelitis. In the report by the League of Nations¹ the idea is newly advanced that the virus gains entrance in the pharyngeal region and becoming localized there, secretes a toxin, possessing neurotropic properties like that of tetanus or diphtheria. Perhaps a local immunity is engendered by the virus in the tonsils or pharynx, thus protecting the host against the disease.

TRANSMISSION OF THE POLIOMYELITIS VIRUS TO OTHER ANIMALS

The virus has been successfully transmitted to only one type of experimental animal, the monkey, preferably the macacus. Different men have reported being able to infect rabbits, but recently several articles have appeared which conclusively prove that the rabbit is not susceptible. (Fairbrother,¹⁸ Harmon, Shaughnessy and Gordon,¹⁹ and Thompson.²⁰) Harmon²¹ and his associates have also successfully shown that no other animals can be infected, using young dogs and cats, guinea pigs, mice, young pigs, lambs and calves.

INCUBATION PERIOD

In 1929 Aycock and Luther²² studied a large number of cases in order to ascertain the incubation period for poliomyelitis. They found that in man it varied from six to twenty days, and consider that the time of greatest infectiousness is probably "from the fourteenth day preceding the onset of symptoms to at least the fifth day of the disease."

DIAGNOSIS

Early diagnosis is quite essential for the successful treatment of poliomyelitis. Luther²³ in 1927, and Aycock^{24 25} in 1928, have given de-

tailed methods of diagnosis that are of practical value for early recognition of the preparalytic stages of the disease. They both state that while fever, headache, occasional gastro-intestinal disturbance and drowsiness may be present, they are not sufficiently characteristic to complete the diagnosis, so that one should watch for the following symptoms: a flushed face, a rapid pulse, more prostration than the temperature would warrant, coarse tremor, rigidity of the neck (though not as marked as in meningitis), stiffness of the spine with a bending forward from the hips with the spine rigid, a very slight Kernig's sign but with hyperactivity of the deep reflexes, diminishing later. With these symptoms present a cerebrospinal puncture is advocated to confirm the diagnosis. There is an increase of white cells, usually between 50 to 250 per cubic millimeter, according to Aycock, but may run as high as 700 to 800. The globulin is increased and the sugar normal. Paralysis may occur in the following forty-eight to seventy-two hours, but there is no way of predicting which cases having these early signs may later become paralytic. For this reason the early administration of convalescent serum is advocated.

TREATMENT

The use of serum treatment was advocated by Netter in France about 1910 and 1912. Since then three types of serum have been tried, convalescent human serum, antipoliomyelitis immune sheep or horse serum, and horse serum immunized against the streptococcus of Rosenow, injected by various routes.

(1) *Convalescent Human Serum*.—The use of this serum seems the most rational, since it has been experimentally proved that such serum has neutralizing powers when injected with the virus into a monkey.

Netter²⁶ gave the serum intraspinally to thirty-two cases, in 5 to 13 cubic centimeter amounts. Six patients recovered completely, fifteen showed varying degrees of improvement, in three there was no change, while eight died. Since then the use of convalescent serum has been tried with varying degrees of success, given intraspinally, intravenously, or combining the two methods, as advocated by Amoss and Chesney²⁷ in 1917.

Aycock and Luther²⁵ in 1928 reported favorably on the use of convalescent serum given intraspinally and intravenously in 106 cases diagnosed in the preparalytic stages. Since 64 per cent of these cases later developed paralysis, it was evident that they were not dealing with the non-paralytic form of poliomyelitis. Total paralysis developed in 19 as against 63.6 in 482 untreated cases, while only 5.7 per cent showed the more severe grades of paralysis in contrast to 46 per cent in the untreated group. They concluded from their data that when convalescent serum is given in the preparalytic stage, the results are favorable "as shown by: a low mortality rate, a low average total paralysis, and a strikingly low paralysis of the severer grades." In 1929²⁸ they presented further observations on the use of con-

valescent serum given in the preparalytic stage to a group of 116 cases, with comparable results.

Ayer²⁹ in 1929 made an interesting report on the use of serotherapy in preparalytic poliomyelitis, giving in detail his methods of diagnosis and the technic of serum preparation and administration, using 10 to 25 cubic centimeters intraspinally. The comparative results are also given of treating a portion of the group of 126 cases with anti-pneumococcus serum. Twenty-three patients were given this serum alone and eight an initial dose followed by human convalescent serum. The other patients were treated with the latter alone. According to Ayer, there was no great difference in the results following either treatment, but he does not advocate the use of anti-pneumococcus serum because of the danger of serum sickness. He also considers it futile to administer serum therapy to paralytic cases, the best results being obtained in the preparalytic stage.

A comprehensive report on the technique of convalescent serum therapy was published by Aycock, Luther and Kramer³⁰ in this same year. It included a description of the bleeding apparatus, the method of obtaining blood from the donor, the preparation of the serum, the method of administration and the possible reactions of the patient to the serum.

In France since 1922 different men have used convalescent serum intraspinally, followed by repeated intramuscular injections. In California Shaw, Thelander and Fleischner³¹ in 1925 and again Shaw and Thelander³² in 1928 reported favorably on the intramuscular administration of serum in preparalytic cases. In the latter report the results are given for a series of eighty-one cases, forty-three of which received intramuscular treatment. There was no fatality nor paralysis among the seventeen cases treated within the first forty-eight hours after onset, while the amount of persistent paralysis and the number of deaths increased the later the serum was given in the course of the disease.

Fifty cubic centimeters of serum has been considered one dose for children under five years when using the intramuscular method. If the patient is over five years 100 cubic centimeters or more are advocated, according to the severity of the case.

The serum is best obtained from convalescents from one month to one or two years after the acute state.

In the Canadian epidemic of 1928 to 1929, the intramuscular method of treatment was used almost exclusively as recommended by the Medical Research Committee of the University of Manitoba.³³ Twenty-five cubic centimeters of convalescent serum was given as the standard amount. From the reports issued the results of the treatment seem very encouraging.

(2) *Immune Serum*.—In 1918 Pettit³⁴ in France reported the successful immunization of both a sheep and a horse to the virus of poliomye-

litis, although Stewart and Haselbauer³⁵ in 1928 were able to obtain only doubtful results in attempting to repeat the sheep immunization. They also state that there is no definite experimental evidence for the use of Pettit's serum because he employed only one neutralization test with this serum in monkeys and failed to use a control with normal sheep serum. The latter has been shown to contain a small amount of neutralizing ability against the virus.

No one else has been able to successfully immunize a large animal with poliomyelitis virus until recently, when Fairbrother,³⁶ (1930), obtained a serum by the intramuscular injection of a horse. This serum, after fifteen injections over a two months' period, was able to neutralize a potent virus in vitro, provided the ratio of serum to virus was equal to or greater than one. When the ratio was reversed, infection occurred. However, it had no value when tested therapeutically against monkeys given the disease.

The serum of Pettit has been used by many French physicians, the results being reviewed by Etienne¹ at the Congress of French Pediatricians in 1927. While he was very enthusiastic over the results, other members of the Congress were not in accord with his views.

In the Roumanian epidemic of 1927, several methods of treatment were given, dividing the cases into separate groups. Marinesco Manicatide and Draganescu,³⁷ (1929), report the results of using human convalescent serum, Pettit's serum, auto-hemotherapy, x-ray plus diathermie, and of leaving a certain group without specific treatment.

(1) Convalescent serum was used in nineteen patients with 31.5 per cent complete recovery.

(2) Pettit's serum was used in thirty patients with 23.3 per cent complete recovery.

(3) With the x-ray and diathermie 22.2 per cent patients showed complete recovery.

(4) While of the fifty-two untreated patients 15.3 per cent recovered completely.

(3) *Rosenow's Serum*.—Rosenow¹ has used his antistreptococcus horse serum in 1300 cases of poliomyelitis and considers the results favorable. Stewart and Haselbauer,³⁵ (1928), however, were unable to obtain experimentally any neutralization of the virus with Rosenow's serum either concentrated or unconcentrated. They consider that there is no sound basis for its therapeutic use.

It is thus seen that several types of serums have been used by different groups, usually with favorable reports, although there has been no particular uniformity as to the size of the dose or the method of treatment. The difficulty in trying to estimate the true value of these reports lies in the fact as shown by Kellogg,³⁸ (1929), and by the report of the League of Nations,¹ (1930), that there is first, the question of the accuracy of diagnosis, many cases may be included in the statistics which might never have been true poliomyelitis, and secondly, the variation in the case fatality rate due to the rise and fall in virulence of the

disease during an epidemic, since the prognosis for a case treated during the height of an epidemic may be entirely different from that treated during either the beginning or the end. Unless alternate cases are left untreated it is difficult to make any correct statements as to the efficacy of the treatment. Kellogg states, for instance, that in Alameda County, California, during the 1927 epidemic, 121 patients were given practically no serum. Six of these died, about five per cent. On the other hand, the mortality in Del Norte County was 28 per cent and that of Glenn County 31 per cent. The case fatality rate for the state at large was 18.25 per cent, showing that there must have been a great variation in the severity of the disease in different localities during the same epidemic.

Nevertheless, in spite of the lack of definite experimental evidence in favor of serum therapy for poliomyelitis, the general impression is that the use of human convalescent serum seems the most rational form of treatment, inasmuch as it can be shown to neutralize the virus upon injection of the mixture into a monkey. If used in as large a dose as possible during the preparalytic stage the chances are propitious for a favorable outcome.

PROPHYLAXIS

The only mention in the literature for the use of serum as a prophylactic in poliomyelitis have been the 1928 reports of Davide³⁹ in Sweden and of Flexner and Stewart⁴⁰ in the United States.

Davide injected five cubic centimeters of convalescent serum intramuscularly into seventy-three people less than twenty-five years old, leaving eighty-four uninoculated for controls. Of the controls fourteen developed poliomyelitis, with several abortive cases. Of the inoculated group, only one developed the disease. It may have been already acquired, however, as the patient came down forty hours after having the serum. The cases in this outbreak were all mild in type, so the test of the serum efficacy was not a severe one.

Flexner and Stewart do not present any experimental evidence in favor of serum prophylaxis but merely advocate its use in the event of a severe epidemic, on the basis of the in vitro neutralization tests. They recommend ten cubic centimeters subcutaneously for children and twenty cubic centimeters for adults, the injections to be repeated after four to six weeks if the epidemic persists.

HISTOLOGY

The most comprehensive recent account of the histology of experimental poliomyelitis is that of Hurst⁴¹ in 1929 at the Lister Institute, in which he concludes that poliomyelitis is "an inflammatory disease of the whole nervous system with especial involvement of the anterior horn-cells." Also that "the nerve cells are primarily affected by the virus and their degeneration is not attributable to the accompanying interstitial inflammation."

Later Fairbrother and Hurst⁴² have shown that in experimental poliomyelitis, the various

parts of the spinal cord are attacked almost simultaneously; that the virus spreads towards the brain and in the spinal cord along the axis cylinders, although meningeal propagation may also be possible, and that the primary lesion is in the nerve cells followed by inflammation of the interstitial tissue. They also show that the virus leaves the cerebral cortex at an early stage after inoculation and appears to spread along the nerve fibers.

George Williams Hooper Foundation, Second and Parnassus Avenues.

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ACUTE ANTERIOR POLIOMYELITIS— EPIDEMIC IN CALIFORNIA

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ACUTE anterior poliomyelitis, commonly known as infantile paralysis, is epidemic in California at the present time. The situation is worthy of serious consideration. To date this year, 238 cases have been reported: January, 17; February, 3; March, 12; April, 16; May, 59; June, 131 (first three weeks).

Many cases are not recognized as acute anterior poliomyelitis since diagnosis in the systemic stage can seldom be made except in the presence of an epidemic. This article is presented so as to urge the health officers to seek the coöperation of the physicians and place under control all suspicious cases with the least possible delay.

It has been observed that in those years when poliomyelitis becomes unusually prevalent in the late spring and early summer, there is nearly always an extensive outbreak of the disease in the late summer and early fall, when, under normal conditions, the disease is seasonally more prevalent. *The prompt institution of control measures at the present time, therefore, is of the utmost importance in order that the chances for a widespread epidemic during the coming fall may be minimized.*

Poliomyelitis, perhaps, is one of the most common of the communicable diseases. Since paralysis occurs in but a small percentage of cases, proper diagnosis is very often not made. Whenever the disease becomes epidemic, all cases of sudden, acute illness in children must be regarded with suspicion. It should be remembered that poliomyelitis is not essentially a disease of the central nervous system. It is only in a relatively small number of cases that there is any invasion of the central nervous system. Paralysis is purely an accidental and incidental occurrence and, in reality, it occurs rarely. Seventy or eighty per cent of all cases of this disease present merely the aspect of an acute generalized affection without sign of injury to the central nervous system. Environment and social conditions have little bearing upon the appearance of the disease, and it occurs as commonly in sparsely settled rural districts as in crowded cities. It is caused by a filterable virus which is unknown apart from infected human beings. This virus possesses a high degree of resistance, both to cold and to ordinary degrees of heat, for long periods of time. If enclosed in albuminous matter it withstands drying quite readily. Since it can withstand both moist

and dry conditions, it can easily be carried into the respiratory tract as a spray produced by coughing, sneezing, etc. It is doubtful if agents other than man play any conspicuous part in the transmission of the disease. Poliomyelitis is a human-borne, contagious infection, with its portal of entry in the upper respiratory tract, especially in the nasopharyngeal mucous membrane.

For the sake of safety, cases of severe intestinal disturbances or of common colds, occurring especially in young children, at the present time should be regarded with suspicion. They should, accordingly, be isolated without delay and isolation should be maintained at least until the nature of the illness is definitely determined. The age of the patient should not be considered in making diagnosis. While most cases occur in young children, many adolescents and young adults are attacked. The younger children seem to weather the acute stages better than adolescents and young adults, among whom the death rate is especially high. Since the adult carrier is known to play an important part in the transmission of the disease, it is important that whenever a case of poliomyelitis occurs in a family, all members, as well as other contacts, be isolated for two weeks, as required under the regulations of the California Department of Public Health. Cases of poliomyelitis must be quarantined for a period of three weeks.

For your information, a brief outline of the disease is appended:

The classification of poliomyelitis, which is most useful from a clinical standpoint in that it gives the different forms as they are met with in practice, is as follows:

1. The spinal poliomyelitic form.
2. The meningitic.
3. The encephalitic.
4. The form resembling Landry's paralysis.
5. The abortive.
6. The bulbar or pontine form.
7. The ataxic.
8. The polyneuritic (resembling neuritis).

The spinal poliomyelitic form is the common form which is generally encountered. The meningitic form is very fatal, and the paralysis which accompanies it is of the spastic rather than the flaccid type. Frequently this form can only be differentiated from meningitis by making spinal puncture and finding the specific organisms of meningitis in the spinal fluid.

Those cases showing early paralysis of the laryngeal muscles offer great difficulty in differential diagnosis between poliomyelitis and diphtheritic paralysis. Many of these cases of throat paralysis develop paralysis of the muscles of respiration, and practically all terminate fatally.

The encephalitic type must be distinguished from the so-called sleeping sickness or encephalitis. The type resembling Landry's or ascending paralysis is not so difficult of diagnosis as the early paralysis is in the lower extremities, the paralysis gradually extending to the muscles of the trunk and upper extremities. The so-called abortive (nonparalytic) type is probably the most dangerous type from the health officer's standpoint. It can be safely said that for every paralytic case which is encountered, there have been fifteen cases of the nonparalytic type.

Onset (Systemic Phase).—The disease begins suddenly, with fever as the most common single symptom and the fever may be any grade. There is generally pain or tenderness in the back of the neck, back, arms, and legs. In young children, vomiting and diarrhea may usher in the attack, although constipation is more often present. In older children, headache and muscle pains are generally found. Sometimes the first symptom is that of lassitude or drowsiness; sometimes interrupted by periods of great restlessness or even convulsions. Sore throat is not uncommon.

While the systemic symptoms are merely those which may occur in any sick child and may pass off without a definite diagnosis being made, the com-

bination of fever, vomiting, constipation, drowsiness, and irritability, especially when combined with headache, a transient flushing of the face, abnormal sweating, or retention of urine, justifies the tentative diagnosis of poliomyelitis if frank cases are occurring in the vicinity.

The Paralytic Stage.—After the systemic phase, lasting a few days at the most, there may be a period of improvement, or the disease may go directly into the paralytic stage. In about 75 per cent of the cases in which paralysis appears, it comes on or before the fourth day of illness. Sometimes the paralysis can be discovered only by careful searching. It may be limited to a single muscle or a part of a single muscle, a group of muscles, or it may be general. In most cases the paralysis is partial rather than complete.

Treatment.—The treatment in the early stage of the disease, that is, when the temperature is elevated and the patient suffering from pain and tenderness in the paralyzed part, *should be absolute rest only, and no active physical or mechanical interference whatsoever.* The many forms of massage and electrical treatment should be postponed until all constitutional symptoms have disappeared and the patient no longer suffers from pain or tenderness. *The only active treatment of a paralyzed limb during the acute stage should be rest of the part in such position that contractures cannot develop, in an effort to keep the limb in as normal condition as possible.* In hospital practice it is now the custom to place the paralyzed limbs in a plaster cast and keep the patient absolutely quiet.

Serum from recovered cases of poliomyelitis is used in the treatment of this disease. It is considered advisable to take blood from only the paralytic cases. This blood may be taken any time after the temperature has returned to normal and it has been taken as long as ten years after recovery. While whole blood may be given intramuscularly in emergencies, the recommendation is that at least fifty cubic centimeters of the convalescent serum (preferably a pooled serum) be given intramuscularly, as early in the course of the disease as possible. Health officers are urged to prepare a list of donors from the known paralytic cases in their territory and have the list available for those physicians requesting convalescent serum. When feasible, it is recommended that collecting stations be established.

THE LURE OF MEDICAL HISTORY

SIXTEENTH CENTURY GERMAN MEDICINE*

Artzneybuch of Hofmedicus Gäbelthouer

PART II

By S. L. MILLARD ROSENBERG, Ph. D.

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European and American literatures have many passages confirming the authenticity of the remedies quoted in Part I of this article from the sixteenth century Dr. Gäbelthouer, court physician to the Duke of Württemberg. Shakespeare scholars can think of some, I am sure, and wide reading will convince the most skeptical that the witches of *Macbeth* were truer to real life than the modern reader suspects. Coming down to

* Part I of this paper, giving the introductory comments on the book under review, was printed in the July issue of California and Western Medicine, page 508. To understand the prescriptions here given, it is desirable to read Part I of this paper. The book referred to is the "Artzneybuch" of Hofmedicus Gäbelthouer, printed at Tübingen, Germany, in 1596. Brackets as used in this article are insertions by the translator.

later allusions, I can think of none more direct than that of Doctor Faustus himself:

Faust:

This was the medicine! The patient's woes soon ended,

And none demanded, Who got well?

Thus we, our hellish boluses compounding,

Among these vales and hills surrounding,

Worse than the pestilence, have passed.

Thousands were done to death from poison of my giving;

And I must hear, by all the living,

The shameless murderers praised at last!

(Bayard Taylor's translation.)

Goethe's Faust is, of course, modern-minded and hence unrepresentative of the attitude of real medieval minds, whether functioning in the sixteenth or the twentieth century. So Faust's self-condemnation must be viewed as a true modern views everything, in its proper historical perspective. Thus viewed, the criticism is too harsh, for though the boluses were, as Faust says, hellish, the murderers were not shameless but perhaps as sincere as modern physicians. Otherwise, there would be no warrant for printing this article under the above heading of "medical history."

Before proceeding with the recipes, one word more, in regard to the reader's probable amazement at the mass and variety of the compounds, their apparent incongruity of combination, and the almost invariable preference for dozens of liquids and solids in a single prescription. Before letting his amazement run away with him, let the reader look around him today and see the many evidences of like practices in his own home town. If everything conceivable must somehow do service in good old Dr. Gäbelthouer's prescriptions, and if all the fauna and flora of the countryside must contribute a share of them, perhaps the primary object was to impress the patient, and the psychological effect of mere quantity and variety may have been present to the Hofmedicus—who can say? But to continue:

SIXTEENTH CENTURY REMEDIES FOR EYE DISEASES

Diseases of the eye:

1. "*For hot or swollen eyes*, take the white of a new-laid egg, add white rosewater, three lentils, and some camphor; pound well in a clean mortar and make little cakes of the mixture, the size of a thaler; see that they are well moistened and apply to the eyes until the cake is dry; wet again and reapply until all the heat and pain are drawn out; much putrid matter will be drawn out, too."

2. "Temper the white of an egg with eel's blood, keep in a copper vessel, and apply warm under the suffering eye; this generally gives relief."

3. "Take the yolk of an egg, burn to powder, add woman's milk and honey, and apply. This is especially effective with *cataracts*."

4. "Take a pound of rosewater and honey, and a pound of whites of eggs, well clarified with a bath-sponge. [?]. Put into a green earthen pot well glazed; stir thoroughly; add nutmeg, nutmeg flower, clove, green copperas, ginger, and galanga, an equal portion (small quintal) of each, and pound well into a delicate powder. Seal the pot well with a clean soft cloth, and bury the pot deep in the earth for three days. On the third day dig it up, remove the cloth, clean it and

dry thoroughly; then with it apply the mixture to the eyes, anointing carefully. Permit an occasional drop to fall into the eye. This treatment will take away much of the *pain*."

5. "Take three eggs, boil them hard in vinegar; peel, and use the whites only. Add a clean boy's urine; stir the mixture well; squeeze through a cloth into a glass. Apply three times to the eyes and to the cephalic vein.

6. "As an *eye powder*, good for all ailments of the eye, especially for felon [?], take the white of a very hard-boiled egg—as hard as you can boil it—add the whole of a nut of nutmeg, with a little alum; pound till as fine as flour. A splendid eye remedy."

7. "If a *foreign substance* has lodged in your eye, or if someone has hit you in the eye, or thrown something into it, take milk from a woman still suckling a boy baby, about a spoonful; add the white of a new-laid egg; pound it well after adding white rosewater, fennel water, elder-blossom water, and Schnallenwasser [?], a spoonful of each; mix well with the milk and egg, and put into a clean glass. Have ready a pad of clean hemp; place it on a flat clean plate; pour from the glass enough of the mixture on it to moisten well; put on the injured eye; the pad must be large enough to cover both eyelids. Let lie until dry, then renew as often as needed, day and night, until a cure is effected. If the mixture is all used up, renew as before. This remedy has never failed; it is good and has long been used."

8. "Take some of the big flies that are found asleep on walls in the spring; cook them in water. Apply a few drops of the water to the corner of the eye *when-ever red*; apply at night before going to sleep."

9. "If the *red eyes water heavily*, take a tablespoonful of honey, a spoonful of salt, and a measure of your very best wine, or the best you can get; mix in a brass basin which can be closed so tightly that not a drop can escape. Every hour turn the vessel upside down, day and night for eight successive days. Then put the mixture into a blowing apparatus [?], stir well and let no steam escape. As long as the eyes are red, whenever they smart or sweat, apply some of the water to both corners of the eye with a soft feather. Be careful as to drafts of air."

10. "Take white rosewater, about a spoonful; mix with large mastic seeds; burn a wax candle and let the wax drip into the mixture. Then let stand, and see to it that the odor does not all escape. Drop this water frequently into the eyes. Then take the ground mastic, mix it with the white wax; make a candle out of it; burn it, then extinguish and let the smoke of it enter the eyes. This is especially helpful in *discharges from the eye*."

11. "*Running eyes* are helped by taking leaves and root of crowfoot, keeping these twenty-three hours in vinegar, then binding them to the elbows of both arms, keeping them on overnight until they draw large blisters. When these break, the flow from the eyes will be directed through the burst blisters and the cure will occur."

12. "Any *pain in the eye* is helped thus: take elderberries, crush them well, put into a vessel with vinegar, keep covered overnight in a cool cellar; then put in a can or other vessel and boil; when the steam rises, take from the fire and let the patient hold his face over the steam. While the mixture is still hot, apply some of it with a sponge to the eyes, washing them well. This is especially effective at night before going to bed, and on rising in the morning. Keep this up until relieved."

13. "The water which runs from the vine tendrils in the month of May when cut is highly effective against *pains* if some of it be put into the smarting eye."

14. "When *pocks break into the eye*, burn some linen cloth and place it overnight on an anvil or some other steel; in the morning you will find some drops on it; apply these with a feather to the affected eye and it will effect a cure. Duke Frederic of Saxony

learned of this remedy from a heathen in the Holy Land and has tried it successfully again and again."

15. "Take a new unglazed earthen pot, put into it elderberries burned to powder, and keep unsealed until quite cold. Then blow some of the powder into the patient's eyes. Although this may make the eyes very sore for a while, the patient will not die of it so long as breath remains in his body, and eventually he will grow better."

16. "For *film over the eye* cut off the head of a black cat; mince it small; put into a pot, securely covered, and place in the bake-oven where the fire is the hottest. Let it remain there until all the bread is baked and the oven has grown cold, then remove and pulverize in a mortar. Every morning put some of the powder in the eye right onto the film. Keep it up until a cure is effected."

17. "Ear wax smeared over it is also excellent for *film in the eye*. It is also effective against smarting and itching of eyes anointed with it."

18. "An excellent *eye remedy* is one made of operculate snail. In the month of May secure a number of these snails in their white shells. Keep them several days in a vessel where they will lose their filth. Now put them in another, but unglazed, new pot, placing the shells on their backs. Fill the shells with about as much salt as if you were salting meat—rows and rows of snails, all similarly salted, until the pot is filled with them. Cover with a well-fitting top, solidly glued down. Put into a hot oven, preferably a bake-oven. Bake until the contents are reduced to ashes; a gray powder will be the result, though occasionally it may be black. Keep this powder in a soft clean cloth, and put some of it into the eye whenever there is *pain*, and hold the eyelid until water runs out of the eye. Or apply some of the powder in quail grease with a soft feather. If that does not help, mix some of the powder with good white wine to which some honey and a few pence worth of Sponggrün [?] has been added, after having been well stirred in a brass mortar and thoroughly blended. Every night put some of this into the eye until the pain disappears."

19. "Take butter made of woman's milk, to which some prepared sal-ammoniac has been added in equal proportion; mix into a salve and anoint the eye."

20. "For *dim eyes*, take the eggs of red ants; pound well into a black dough; bake in a loaf like bread. After it has grown cold, mix with water and apply a few drops to the dim eyes, which will quickly have their sight restored. This remedy is also effective with animals."

21. "*Dim eyes* are also helped by a mixture of honey with the gall of a rooster, rubbed into the eye. If kept up for a considerable time, your eyes will remain bright forever. Some add gall of hare and eel, and are enthusiastic over results."

22. "A mixture of fennel, rue, eye-bright, vervain, endive, nightshade, pepperwort, and wormwood, a handful of each (since you will need a lot of it) is highly recommended for all the *ills which the eyes may bring* on you. But this remedy should be prepared in the month of May. Chop the herbs as fine as you can, put into a tin vessel, pour old white wine upon it, and add fine pure honey. Then add the urine of a two or three-year-old boy until the herbs are covered with the fluid. Cover carefully and let none of the aroma escape. Let stand in a cool place for eight or ten days. Now distil in glasses three times: the first time off the herbs, then twice the water alone. Keep the fluid in well-sealed glasses, as this mixture is worth its weight in gold for *every affliction of the eye, with the exception of cataract and glaucoma*. Use in the morning on an empty stomach, and at night before you eat supper, and again before you go to bed—a few drops put into the eye with the finger or a fine feather; put into the corner of the eye, the head held well back, working the eyelids up and down so as to reach every part of the eye."

23. "In order to avoid spectacles, take the milk of a woman suckling a boy baby, about three table-

spoonfuls, and about the same quantity of her baby's urine; mix with the white of a new-laid egg and a small quantity of camphor. Put all into a pot, heat in the oven, and apply on a blue linen cloth to the eye, keeping it there overnight. Repeat three nights in succession every three months."

24. "A splendid *eye water* is made as follows: Place some honey in a narrow bottle; leave the open bottle in an ant heap of large ants overnight; by morning the ants will fill the bottle. Cork the bottle. Take dough and enclose the bottle in it; bake in the oven, longer than ordinary bread. This will result in some water in the bottle, which is the very best healing fluid, for it will cure every affliction of the eye."

25. "If blinded by *cataract*, take a goodly quantity of crickets, crush in a clean mortar, and squeeze the juice through a cloth. Apply to the eyes three times a day, one drop only, morning, noon, and night, until sight is restored."

26. "If you have *crab-lice in your eyebrows*, take some silver leaf of the sort used by silversmiths; apply to the eyebrows and the lice will fall out. If your eyebrows are full of mites, take a quantity of ginger nuts and pulverize; now take a slice of bacon, light it and let the fat trickle onto the powder; knead to a salve, and apply frequently. This will not only kill the mites but destroy their nits as well. Or boil a new-laid egg in hot ashes as hard as possible; peel while hot and put into a clean white cloth; hold to your eyebrows as hot as you can stand it. That will surely kill all the lice, mites, and nits."

SIXTEENTH CENTURY REMEDIES FOR EAR, NOSE, AND THROAT DISEASES

Turning now to *diseases of the ear*, the remedies are cheerfully recommended, but there is none guaranteed to be infallible—such is the scientific rigor of the book.

1. "For the *hard of hearing*, frequently apply quinces, cut in two, to the ears, and you will soon note improvement."

2. "Or take gall of rabbit, and of a pickerel; mix them with the fat of woman's milk. Rub the ears with the mixture and put some of it inside, too."

3. "For *ear noises*, take some nutmeg, pulverize, add vinegar and water, and put a few drops of the mixture into the ears."

4. "For any *difficulty of hearing* the following will prove helpful: Get a lot of ant eggs, add olive oil and the fat from the hoofs of oxen; place in a clean cloth and squeeze through. The resultant salve is not only a good remedy for ear troubles, but will cause foreign substances to fall out if applied frequently."

5. "Fat from marmots, allowed to trickle into the ear, will likewise prove helpful."

6. "Juice of onions mixed with honey and a few drops of urine from a pup yet too young to lift its hind legs is an excellent remedy for *ear troubles*."

7. "Or take a large eel; put it while still alive into a pot of water, and boil well. To the resultant fat add the juice from a part of a leek and let stand a while. Then apply a few drops, getting them well into the ears, which cover with a clean white cloth. Now get hot loaves of bread and hold to the ears as hot as they come from the oven, until cold. That will surely help."

8. "Black Christmas-flowers, freshly secured and mashed, will give you a juice which, trickled into the ears, will prove healing. The roots of these flowers, mashed fine after being well dried, with a little water added, a bit of camphor, and some woman's milk, will give you a mixture which, put into the ears, has helped many a person for *all sorts of ear troubles*."

9. "For any *pain in the ear*, take an old oil-jug, moisten inside, and place in it some pulverized sulphur. Hold over hot coals until the sulphur melts; then let the fumes enter the ears."

10. "If *fever* has set in, mix equal portions of juice of leek, woman's milk, and rosewater; dip a cotton tampon into the mixture and bind over the aching ear."

11. "For *worms in the ear*, get a horseshoe from the smithy; heat well; put onion seeds on it; add a few drops of vinegar; cover with a funnel and let the steam enter the ear. That will kill the worms instantly."

12. "Or take an apple with an especially appealing fragrance; bake it, and hold it to the ear while hot. That will fetch the worm, attracted by the aroma."

13. "Or take urine from the sufferer, add a handful of salt, stir well; moisten with it a four-fold cloth, and apply to the nape of the neck. With God's help, the worms will come out living, or it will kill them. If only a few of the worms should come out, the others refusing to follow, dry and pulverize the worms you have secured, add some strong brandy, and pour the mixture into the ears. That will help."

For nose-bleed:

1. "Take donkey's excrement, place in a cloth, and bind to the top of the sufferer's head; the flow of blood will cease."

2. "Or take a new felt hat, preferably black (though some prefer scarlet); cut it into very small pieces; add hog excrement; put the mixture into a new pot, cover tight and heat thoroughly. Now put into a blowing-apparatus (?) and burn to powder. Put aside and use whenever excessive *bleeding, from nose or other parts*, is to be stopped. This applies also to woman's too profuse menstruation. A good way to apply the mixture is with a sponge moistened with vinegar, to which the powder is added, then tucked into the nostrils or other bleeding parts."

3. "For any *festering wound in the nose*, get some electuary from the apothecary, moisten with strong vinegar, add a few pigeon droppings, and apply on a feather."

In regard to the teeth and gums:

1. "A good remedy for *toothache* is ground pepper. Apply as much as you can stand. Not only will this lessen the pain but also cause the teeth to grow hard and white and banish offensive odor. The pepper should be placed between teeth and lips, keeping the mouth closed until the burning and smarting has ceased. Afterwards make sure to wash out your mouth well."

2. "Or mix mustard seed with black pepper, grind very fine, and boil in strong vinegar. Rinse your mouth well with the mixture."

3. "Or take a pound each of burnt and unburnt alum, pulverize, put into a blowing-apparatus, distil a water from it, to which add equal quantities of juice from cornflowers, columbine, and sage, well mixed in a glass; then add ground nutmeg and myrrh; let stand in the sun nine days, then put away safely, for it will keep for many years strong and effective. Wash your teeth well with this mixture twice a week and it will banish pain, prevent any ooze of fetid matter, and whiten the molars."

4. "For *worms in the teeth*, take a powder made of henbane, mix with wax and shape into a candle, and use as such. But be careful, for the henbane smoke is apt to make you dull and dizzy, though it may do no especial harm if you are naturally dull."

5. "For *loose teeth*, mix powdered root of mastic tree with alum and add rosewater; of this make a plaster and apply to the wobbly tooth. It will strengthen it."

6. "For *putrid or bleeding gums*, secure bones from salmon, preferably Rhine salmon, burn, and grind to powder; add a little burnt salt; mix with your own spittle. Rub the mixture well into the gums and over the teeth. It will not only help the affected gums but will keep your teeth sound and white as well."

7. "*Ill-smelling and hollow teeth* are helped with a mixture of honey, nutmeg, and sage, the latter two well ground so that you get a soft salve; with this the teeth are treated. An addition of ground mastic-root and myrrh, a drachm of each, will prove yet more effective. Best of all is to boil all these thoroughly in good red wine. Use as a mouth wash night and morning."

8. "Rub your teeth frequently with a mixture of barley-flour, honey, and salt. This will *turn them from an ugly yellow to a bright white*."

9. "Or use lentils and nut shells, burnt to powder."

10. "Or take barley-flour, knead into a loaf, and bake it until it turns to a black coal; powder fine and rub your teeth with it frequently. They will turn beautifully white."

For sore throat:

"Boil in a brass vessel equal quantities of the juice of mulberries and blackberries; when it first comes to a boil, add a pound of honey; remove from fire when of the consistency of cherry juice. This makes an electuary for simple sore throat, to be used as a gargle, a spoonful at a time. But if the trouble is aggravated by severely *swollen tonsils*, add juice of plantain leaves, sage, and elder blossoms, three spoonfuls of each, heated slowly together in a tin vessel; add a spoonful of rose vinegar. Heat the electuary well every time before using, and gargle as hot as you can bear it. This will remove the soreness and prove a thorough cleanser."

"For *sores in the mouth*, and even holes in the neck, take half an ounce each of alum, myrrh, and mastic, add some burnt hartshorn; mix; pulverize; make into a salve with rose honey. Apply to the sores frequently, and you may even swallow some of the salve, but not more than the size of a hazelnut."

"Camomile blossoms heated in vinegar and bound while yet warm about the neck will always prove helpful for *sore throat and swellings of the neck*."

"Or take a whole swallow's nest, pulverize thoroughly, boil in wine; this substance, of the consistency of porridge, bind while yet hot in a clean cloth about the neck; continue to heat the bandage, as hot as the patient can stand it. Whenever the mixture grows too dry, renew it. If you can secure some live young swallows with the nest, so much the better. My own practice has been to get two young swallows with the nest, at about the age when they begin to get feathers, cut them open in a straight line down the back, including the head; then salt them well and hang them in the chimney: feathers, entrails, and all. I remove nothing whatever, and let them hang in the smoke for a solid year until good and dry."

"For *frog in your throat* [curiously enough, this expression literally occurs: 'Frosch im Hals'] take equal quantities of old grease and soap, pound well together, heat well, and smear your neck with the mixture. Stay in a warm room, and see to it that your neck is well covered with a warm kerchief."

"For *quinsy*, take several live crawfish, pound them up well; put some of the mixture in a white, clean, but rough linen cloth; rub the patient's tongue with it frequently. Have a number of cloths handy, for you must use a fresh clean one for each rubbing."

"A simpler remedy is to cut a rind of bacon of about the thickness of the back of a knife and about as broad as the tongue, on which it is to be laid until the fat melts off, which will cause the burnt skin of the tongue to peel off."

"For *inflammation of the uvula*, take an empty snail shell, powder, add an equal quantity of well-roasted salt, boil in fresh water; gargle the mixture frequently."

"For *hoarseness*, mash some garlic, drain off the juice, to which add two or three spoonfuls of honey; take a spoonful of the mixture mornings on an empty stomach."

"To banish *goiter*, take equal quantities of salt, soap, vinegar, and horseradish juice; mix, and keep overnight. Put some of it into a leather bandage and bind on. It will help."

"Or, take a horse's hoof, bake till charred in a new pot; grind to powder; mix with oil. Use this salve frequently."

"The blood of a weasel, smeared frequently over the goiter, will also banish it eventually."

SIXTEENTH CENTURY REMEDIES FOR HEART DISEASES

Heart disease:

"For *weak heart*, or *palpitation of the heart*, or any heart trouble, nothing is better than good wine, quantities of it, frequently resorted to. A few coins of fine gold placed in the wine vessel will add to the wine's effectiveness."

"Another splendid *heart remedy* consists of a mixture [whether raw or cooked is not stated] of fox tongue and wolf liver, to which is added nutmeg, cinnamon, ginger, and sugar, well mixed. Take a small quantity every two hours."

"For *fainting spells*, take equal quantities of numia [?], nutmeg flowers, and castoreum, in brandy or cinnamon water. That will restore the patient [even ?] if he is half dead."

Pains or stitches in the side:

"Grind to a fine powder the tooth of a wild boar; add scabiosa water and a few drops of oil of almond. Drink a small quantity, hot, frequently. This is by far the best remedy for all *sharp pains in the side*. You may add a plaster, laid on the aching side, made of a mixture of the excrement of a white dog well kneaded with wheat flour and honey and then boiled in goat's milk. While yet hot, put some of the mixture into a leather bandage and apply. Keep your fire going and renew the plaster as hot as the patient can stand it."

SIXTEENTH CENTURY REMEDIES FOR LUNG DISEASES

Coughs:

"Use milk, preferably goat's milk, sweetened. Gargle it and drink it, both."

"Or, take a large onion, hollow it and fill with honey; boil, adding some wine. Squeeze the juice through a clean cloth; drink some of it continually. Be careful to keep out of cold drafts."

"As a powder, take the lung of a fox; wash well in wine, dry, and powder fine. Use a small quantity from time to time."

"For all *lung trouble*, the milt (spleen) of a very black young sucking calf is excellent. Dry in the oven and powder fine. Two spoonfuls in warm beer mornings on an empty stomach, and at night before retiring. Improvement usually sets in within two or three weeks."

"The lung of a young sucking calf is almost equally effective, used similarly. Fox lung is even better. It is also effective in *difficulties of breathing*."

"In very bad cases of *pulmonary trouble*, use crawfish, secured living and pounded fine while still alive; add very hot wine, and squeeze the juice through a cloth; take on an empty stomach mornings, a small quantity, and at night before retiring, for at least three weeks."

"Onions, boiled until quite soft and put while very hot into a leather bandage or thick cloth and applied to the breast will prove additionally helpful."

"Where *difficulties of breathing* accompany the malady, take a large sponge, moisten in vinegar or wine, or even cold water; bind about mouth and nose, and breathing will grow easier."

University of California at Los Angeles.

(To be Concluded)

CLINICAL NOTES AND CASE REPORTS

A LARGE PORK BONE IN THE BRONCHUS*

REPORT OF CASE

By H. J. HARA, M. D.
Los Angeles

THAT foreign bodies, both of organic and inorganic substances, of various sizes and shapes, find their way into the air passage is well known. But that such a large object as is shown in the illustration should have lodged in the bronchus for a month and been unrecognized even after an examination, has prompted me to report the following.

REPORT OF CASE

Mrs. G. H., age twenty-eight, native of Canada, housewife, was referred by Dr. E. J. Steen of Fullerton, with the possible diagnosis of a foreign body in the air passage. She was admitted to the White Memorial Hospital on November 12, 1929, under my service. The patient stated that a month before she had had a choking and gagging spell while eating her supper, which consisted of mashed potatoes and gravy made from the fat in which she prepared the pork chops that evening. At the time she felt a sudden, sharp episternal pain that compelled her to leave the table. The cough and dyspnea persisted during the night and all of the next day. On the third day the above symptoms still persisted, and in the absence of her family physician she consulted another who, after examining her, dismissed her, stating that she probably had a "cold" and that she would be well in a few days, apparently having overlooked (1) the history of choking and gagging at the time of her accident; and (2) subsequent development of persistent cough, blood-streaked expectoration, low-grade septic temperature, and slight dyspnea in a previously well person immediately after the accident, all of which unmistakably point to the presence of a foreign body in the air passage.

Having failed to recover from her "cold" for a month, she consulted her own physician who by this time had returned from his trip. The roentgenograms made by him revealed nothing of definite nature.

Upon her admission to the hospital the routine physical examination was performed by the resident internist, Dr. Albert M. Bond. The usual sign of limitation of expansion of the invaded lung was absent. The asthmatoïd wheeze was barely recognized. But on account of the definite history an exploratory bronchoscopy was performed under local anesthesia after the Jackson technique. The large fragment of bone was encountered just below the carina, being transfixed in the swollen mucosa of the right main bronchus in its posterior wall, which was bathed in mucopurulent secretion. With little difficulty the side-curved forceps were applied and the object was brought to the subglottic region; then alligator forceps were substituted through the laryngoscope, and the invader was delivered through the glottic chink. The bone measured 25x14x5 millimeters. The first day of the operation the patient's highest temperature was 100 F., but soon it subsided and remained so until the time of her discharge the next day.



Fig. 1.—Pork bone lodged in right main bronchus for four weeks.

* From the Department of Laryngology, White Memorial Clinic, the College of Medical Evangelists, Los Angeles.

In a recent communication she stated that she was well, except for a slight pain over the left shoulder which apparently had no connection with the foreign-body incidence.

SUMMARY

- 1. This case forcibly impresses upon us the reliability of the history of the accident in all foreign-body cases.
- 2. That the negative roentgenogram is not in itself proof of absence of usual radio-opaque substance like pork bone.
- 3. That exploratory bronchoscopy is indicated in every doubtful foreign-body case; and,
- 4. That the human glottic chink is capable of admitting a large-sized foreign body.

432 South Boyle Avenue.

RUDIMENTARY GALL BLADDER AND
CONGENITALLY ABSENT
COMMON DUCT

REPORT OF CASE

By J. M. FRAWLEY, M. D., Fresno

AND

STANLEY H. MENTZER, M. D., San Francisco

MARTHA T., an American child, three months of age, was admitted to the Fresno General Hospital because of gradually increasing yellow color of the skin.

The jaundice was not noticed until the baby was at least a month old. Labor was normal; there was no asphyxia. The birth weight was six pounds.

The breast was given for three weeks, then a cow's milk mixture which was not tolerated, and for the last three weeks before admission she had been getting sweetened condensed milk.

When admitted to the hospital there was a marked icterus of the skin and sclerae. The liver was greatly enlarged, emaciation was considerable, and the child's weight was five pounds, thirteen and one-half ounces. The red cells of the blood were 4,150,000 per cubic millimeter; the white cells, 16,000. The blood smear was essentially normal.

The Wassermann was negative, both for the child and the mother. The urine was acid, yellow in color, and showed a trace of albumin.

The stool was white and had the appearance of milk curd. It showed no trace of bile.

The serum was bile-colored and gave a prompt van den Bergh reaction.

There was no increased fragility of the red cells.

Ladd¹ in 1928 reported histories of nine infants, five months or younger, with atresia of the bile duct. In these cases operation was done with recovery in

four cases. Encouraged by these results, operation was performed in this case by Dr. J. H. Pettis. No trace of the gall bladder or common bile duct could be found, and therefore it was impossible to do the plastic operation described by Ladd.

In our case autopsy two days later, the liver was found greatly enlarged and dark green in color. The gall bladder was present, but only about one-tenth of its normal size. There was a true cystic duct which joined the right hepatic duct to form a blind stump one centimeter in length. There was no communication or even rudimentary fibrous cord between this stump and the duodenum. The pancreatic ducts were present and patent.

SUMMARY

A case of congenital absence of the common bile duct is reported. The findings are unusual because:

- 1. The common bile duct was completely absent, except for a patent stump one centimeter long.
- 2. The gall bladder was rudimentary and the cystic duct drained into the right hepatic duct instead of the common duct.

Patterson Building, Fresno.
450 Sutter Street, San Francisco.

REFERENCE

1. Journal American Medical Association, 1928, Vol. 91, p. 1082.

AGRANULOCYTIC LEUKOPENIA IN RELATION TO ACUTE FEBRILE UPPER RESPIRATORY INFECTION

REPORT OF CASE

By EUGENE R. LEWIS, M. D.
Los Angeles

THE first reference I have found to agranulocytosis is Schultz in 1922. Subsequent cases have been reported by various observers, Kastlin collecting forty cases in 1927; Linthicum, Uren, and others reporting additional single cases since. Many of these cases have been anginas in which the main bacteriologic factor has been the *Bacillus pyocyaneus*, although symbiosis of Vincent, the colon bacillus and various strepto- and staphylococci have been reported. While it is apparently possible in any individual, the mass of clinical evidence points to its typical incidence in middle age, and the female sex.

In the literature on this subject there is found nothing significant in the history. The disease is usually of sudden onset, often with chill, fever, malaise, and sore throat, and is usually rapidly fatal. The clinical course of the disease is characterized by general signs of illness out of proportion to local pathology; temperature and pulse rate are high, asthenia and depression are marked, local swelling, edema, and sloughing sometimes ultimately extensive; the first differential blood cell count reveals leukopenia, with disproportionately low granular and polymorphonuclear counts. Eventually the white cells may fall below 500, and in exceptional cases, below 100, with absence of polymorphonuclears and granulocytes.

Uren has compared the pictures of agranulocytic leukopenia and infectious mononucleosis, which is more apt to occur in younger individuals. There is a white cell count between 7500 and 15,000, with increase of mononuclear and decrease of granular cells. Its clinical course is mild and recovery is the rule.



1. Remnant gall bladder. 2. Cystic duct. 3. Right hepatic duct. 4. Stump of common duct. 5. Portal vein. 6. Hepatic artery.

REPORT OF CASE

On November 30, 1928, I was called to see Mrs. B. H., a young married woman, aet. 35. Previous health had been frequently below par, but only vague complaints could be elicited. Tuberculosis had been repeatedly excluded; gastro-intestinal, respiratory, and endocrine studies had never revealed overt pathology. She had had one normal pregnancy, and for a year or two previous to this illness she had been in good flesh and strength. The day before I saw her she had noticed sore throat, general malaise, and aching. Her pulse on first examination was 92, temperature 100.8; tongue slightly coated, pharynx red, nasal mucosa congested, and there was mild tracheobronchial irritation. No râles or chest symptoms, no abnormalities of heart or circulation, abdomen or extremities noted on casual inspection; blood pressure was 98/70. Chief complaints were headache, general pains, sore throat, and weakness. She was put to bed on fluid alkalization and hot fomentations. The following forty-eight hours the clinical picture remained about the same, temperature ranging higher, but less headache and cough.

On December 2 the blood picture was: white blood cells, 1600—45 per cent polymorphonuclears, 50 per cent lymphocytes, and 5 per cent transitional.

		White Cells	Polys.	Lymph.	Trans.
December 3.....	1400	37%	50%	4%	
December 4.....	600	40%	55%	5%	
December 5.....	1500	26%	68%	6%	
December 6.....	1400	43%	55%	2%	
December 7.....	1600	25%	73%	2%	
December 8.....	2300	25%	73%	2%	
December 9.....	3600	24%	73%	3%	
December 10.....	2500	52%	47%	2%	

After December 10, the white count rose gradually, reaching 6200 by December 16, with 62 per cent polymorphonuclears and 37 per cent lymphocytes. No correlation seen at any time between the daily blood count and the clinical condition. On December 2 and 4, with 1600 white cells, 43 per cent polymorphonuclears; and 600, 25 per cent polymorphonuclears, respectively, the patient experienced profound improvement. The accuracy and reliability of all blood counts was carefully rechecked and is unquestionable. The clinical course was satisfactory in every respect from the start. Throat symptoms, cough, headache, and general discomfort subsided gradually, with no new developments. At the end of the eighth day, temperature reached normal; the white count rose gradually; The patient made a complete recovery and has remained well for nine months.

COMMENT

At the time this case occurred there were many cases of acute "grip" or so-called "flu"—not sufficient to warrant the term "an epidemic," however. The white counts of fifteen or twenty clinically similar cases at this time were between 7500 to 20,000, with granular cells and polymorphonuclear cells present in the usual propor-

tions. Inquiry revealed a few cases of moderate leukopenia at this time in patients of other physicians—none below 5000, and none with falling granulocyte and polymorphonuclear cell counts. This case fails to support the usually accepted thought that the white and differential count sheds definite light on the reaction of the individual's mechanism of resistance to the present infectious invasion; and also gives some indication of the measure of acquisition of immediate immunity to that infection.

1154 Roosevelt Building.

A NEW KNEE BANDAGE

By MAST WOLFSON, M. D.
San Francisco

FOR knee injuries many devices and bandages for ambulatory treatment have been made. These have ranged from simple covering with the elastic knee bandage to the more intricate metal braces. The object of this article is to report and describe a bandage which has been useful in the hands of the author in the treatment of some acute and chronic knee injuries.

This bandage is essentially the old figure eight bandage, made out of four-inch flannel. It must be made to order for each knee treated so as to conform exactly to the patient's contour. After several layers of bandage have been placed snugly about the knee in a figure eight, they are pinned in position and basted there. In the middle of the external surfaces the bandage is cut between longitudinal bastings. Machine stitching and cross stitching now take the place of the bastings, and reinforcements of strong cloth are made about the edges. A tongue is placed within the bandage.

Four special toothless buckles are placed on the cut edge—two above the knee-joint, and two below it; with these the patient can slip it on and off and tighten the bandage where it is necessary. The line of force of the figure eight bandage remains constant (see plates 1 and 2). Pressure pads may be placed over various areas inside the bandage if needed.

This bandage has proved effective, comfortable, and warm. It is inexpensive and easily washed. Complete flexion of the knee is possible without distorting the bandage.

490 Post Street.



Plate 1

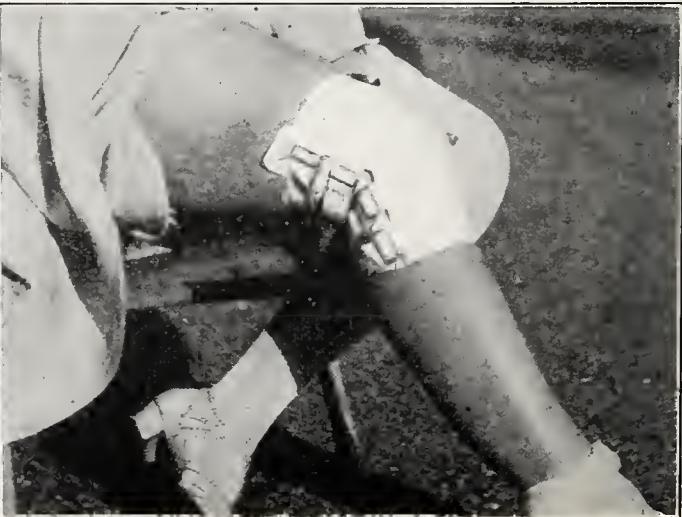


Plate 2

BEDSIDE MEDICINE FOR BEDSIDE DOCTORS

An open forum for brief discussions of the workaday problems of the bedside doctor. Suggestions for subjects for discussion invited.

X-RAY BURNS

JOHN M. REHFISCH, SAN FRANCISCO.—The day of the x-ray burn as a relatively common clinical entity is over. Most roentgenologists go on for year after year without seeing any burns, and when they do occur they are almost invariably the result of negligence. It is pretty nearly always true as the lawyers regrettably say, *res ipsa loquitur*.

Modern equipment with easily measured, accurately controllable and uniformly constant output of x-rays have taken the gamble out of the physical problems of dosage. The biological factors remain as the only imponderables and while it is unquestionably true that sensibility to radiation differs widely, a true idiosyncrasy must be extremely rare. Ordinarily the biological factor of safety is extremely wide—and the dose of filtered radiation which will cause a mild erythema may be very much increased without the occurrence of a dangerous burn. There is less margin in unfiltered radiation; but it is probably true that except in very minute areas where the caustic effect of the ray is desirable there is nothing the unfiltered ray can do that the filtered will not do as well or better. When one considers the greatly increased safety with which one works, if he has a filter there seems to be little excuse save that of economy of time for dispensing with it even in superficial lesions. When the inevitable mistake in dosage does occur, its results are usually negligible if a filter has been in place—they are nearly always shocking if it has not.

The accidental omission of a filter can be guarded against by any one of several methods—if, despite all precautions, such a catastrophe occurs, and a full dose is given, there is very little that can be done in the way of prophylaxis of the inevitable burn. It is advisable to apply some form of calamine lotion (the so-called Dodd's solution is probably the best) freely. The prognosis of the burn may be judged by the rapidity with which it develops. If it comes within the first few days, the outlook is very bad.

The outstanding clinical features of x-ray burns are that they are very painful and very indolent with little tendency to heal. Air-cooled ultraviolet radiation seems to stimulate the healing process at times. Usually, however, a surgical debridement well down into normal tissue should not be too long delayed. Unfortunately, the burns are frequently in situations where this procedure is technically impossible and then the

healing process may take months or years with a frail and brittle scar especially prone to become epitheliomatous.

There is no condition in which the old saying that prevention is better than cure is more true than in x-ray burns. And there is no condition in which prevention is easier or in which cure is more tedious and difficult.

* * *

SAMUEL AYRES, JR., AND NELSON P. ANDERSON, LOS ANGELES.—The most distressing and disfiguring type of "burn" which the dermatologist is called upon to treat is that produced by roentgen rays or radium. These causative agents produce their effects from one or two massive doses or as the result of the cumulative effect of many small doses.

The appearance of such radiation sequelae varies from days to months and even years. In the acute type erythema appears in two to fourteen days and may be followed by pigmentation (freckling) and desquamation. Subjectively slight burning, stinging or itching sensations may be present. If the reaction is more profound a pronounced redness occurs, and either superficial or deep vesicles may appear associated with moderate or marked swelling of the area, which process may go on to erosion, excoriation and weeping, with the formation of a yellowish gray necrotic adherent pellicle. In more marked cases the deeper tissues (subcutaneous tissues and muscles) may be involved with the formation of deep, necrotic, exquisitely painful ulcers, the tissue about which is cyanotic and leathery with a brawny induration. These ulcers take months and years to heal and are often the site of a complicating prickle cell epithelioma.

In the chronic type of radiodermatitis, which is usually the result of many small repeated exposures, vesiculation and ulceration is rare. Pigmentation, either diffuse or as a freckling, occurs, followed by alopecia, atrophy, wrinkling, areas of depigmentation, and a disfiguring telangiectasia. Later ulcerations and hyperkeratotic "warts" may appear. These hyperkeratoses may be the sites of origin of prickle cell carcinomas. The epithelioma which occurs following overdosage of either roentgen rays or radium is always of the prickle cell (metastatic) type.

In the prophylaxis of radiodermatitis the following may be mentioned: Reactions should be avoided except in cases of malignancy. Small

fractional unfiltered doses of roentgen rays are sufficient in most dermatological conditions. The application of most local remedies to areas under treatment is fraught with danger because such remedies generally enhance the effect of these agents of radiation. Boric acid, vaseline, alcohol, calamine, bismuth, zinc oxide, ichthyol and magnesium carbonate are practically the only drugs that may safely be used with concomitant roentgen ray or radium treatment. The use of the roentgen ray in the treatment of hypertrichosis is mentioned only to be condemned, for it is absolutely impossible to destroy the hair roots by this means without eventually producing a thinned, atrophic, wrinkled, telangiectatic skin. The physician who uses these agents either for diagnosis or therapy should be adequately protected at all times and especially men doing considerable fluoroscopic work. Omission of the filter in deep roentgen ray therapy is always attended with disastrous sequelae.

The treatment of mild untoward reactions following the use of roentgen ray or radium consists in applying local soothing remedies such as lead and opium wash, or calamine and zinc. In the more severe types wet dressings of boric acid and normal saline or Pusey's calamine liniment may be used. Where ulceration has occurred frequently all local applications are useless. The continuous bath may be tried, but wide excision of the affected area by means of the endotherm knife is the treatment of choice.

In the more chronic type of radiodermatitis, prolonged exposure of the affected areas to the elements, (especially sun and wind), should be avoided. A person so affected should apply locally two or three times a day, for the rest of his life, a thin protective coating of some non-irritating oil or grease. Telangiectatic vessels may be destroyed by electrolysis if the involved area is small. All warty or hyperkeratotic lesions occurring in such areas, and especially those with a tendency to fissure or those of a "wet" type, should be destroyed by electrodesiccation. Ulcerating lesions should be destroyed by the endotherm knife and the resultant defect closed by skin grafts. The use of either roentgen ray or radium as curative agents in lesions (hyperkeratoses, x-ray cancers) which they themselves have produced is to be condemned. Ultra-violet radiation is of no value either in the prophylaxis or treatment of acute or chronic radiodermatitis and may at times do actual harm.

* * *

GEORGE WARREN PIERCE AND GERALD B. O'CONNOR, SAN FRANCISCO.—In our experience we have seen a considerable number of cases of chronic radiodermatitis. Doctor Ayres has drawn an accurate picture of this type with the "pigmentation, alopecia, atrophy, wrinkling, areas of

depigmentation, telangiectases and the later ulcerations and hyperkeratotic 'warts' which may finally be the sites of origin of prickle cell carcinomas." We have also seen a number of these cases which have been treated for some time with ultra-violet rays with no improvement. In the later stages we are of the opinion that complete removal of the affected area should be done, and the resultant defect be repaired. Modern reconstruction surgery can restore to normal almost any defect caused by x-ray burns and can replace the scar with normal skin and subcutaneous tissue, thus not only reconstructing the contours and removing the unsightly scars, but also acting as a prophylactic against malignancy. Even when these ulcers are healed by long and careful treatment they are sure to break down again from slight blows, exposure to the elements or even the alkali in soap.

We have recently reconstructed almost the entire face of a patient who was burned with x-ray (from treatment for hypertrichosis, at the hands of a lay operator in a beauty shop). The left cheek scar was replaced by a large flap from the chest and this was carried up in three stages, first to the left cheek, then over the chin and finally severed at its pedicle and this end used to cover the right cheek, supplying a smooth and natural skin to replace the pitted, pigmented and hyperkeratotic scar. Another case presented ulcerating areas covering almost the entire extensor surface of both forearms. The burn resulted from a technician's efforts to treat psoriasis. At operation the entire affected area was dissected out down to the deep fascia and the arms placed in plaster splints, windows were cut over the wounds and the areas grafted with split skin grafts. The results were excellent, but psoriatic patches appeared on the skin grafts, though they were grafted directly onto the deep fascia of the forearms.

We have had a considerable number of such burns of the hands and fingers in older members of the profession who sustained these burns in the early days of the roentgen ray when its destructive power was not known. Wolfe grafts to the fingers and in some cases tubed pedicle grafts gave healthy covering to the fingers and restored function which was previously limited.

We have seen some cases of such burns, though not to the ulcerative stage but only to the stage of depigmentation and telangiectases, where radiotherapy has been used for keloids. We favor the treatment of keloid by complete excision and reconstruction of the part and treatment by radium ten days after operation to prevent the recurrence of the keloid. The result after reconstruction is nearer the normal and the result is obtained so much quicker that we are sure this method has many advantages over the slow wearing down process of radiotherapy.

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Leaflet Regarding Rules of Publication.—California and Western Medicine has prepared a leaflet explaining its rules regarding publication. This leaflet gives suggestions on the preparation of manuscripts and of illustrations. It is suggested that contributors to this journal write to its office requesting a copy of this leaflet.

EDITORIALS

MEDICO-ECONOMIC PROBLEMS

Three Medico-Economic Articles in the July Issue of CALIFORNIA AND WESTERN MEDICINE.—Last month's issue of CALIFORNIA AND WESTERN MEDICINE contained three articles, one by Dr. John H. Graves, a second by Dr. John C. Ruddock, and a third by Dr. Rexwald Brown, which should be of more than ordinary interest and value. All three discussed medico-economic problems.

* * *

Report of Dr. Graves on "Health Insurance."—The first, a paper by Dr. John H. Graves of San Francisco, presented the results of a survey on the so-called health insurance problem. The facts presented by Dr. Graves were gathered after much effort, from many sources, and are worthy of serious thought. Dr. Graves, as chairman of the standing committee on economics, took up his study at the request of the Council of the California Medical Association. The Council during the last year or so has been giving considerable time to a discussion of ways and means through which the burdens of illness falling on the "white collar brigade" of lay citizens, might be lightened, without at the same time bringing into being a pauperization of that group of citizens or a demoralization of the standards and methods of medical practice.

One of the major objections to practically all health insurance plans is the difficulty encountered in trying to preserve the individualism in

medical practice—that intimate relationship between physician and patient which in the end works to best interests of the patient, and is equally valuable to the physician. It is through mental alertness in medical observation and practice that physicians make themselves increasingly valuable to their lay fellows and to the community. Health insurance plans which furnish "mass" care of lay persons, at small stipends to attending physicians, are bound to make for mediocrity of service, as witness the experiences of some of the European countries. Mediocrity of service means demoralization of medical standards. That is why all plans trenching on the domain of health insurance must be so carefully studied.

* * *

Report of Doctor Ruddock on "California Clinics."—A second paper of interest was the survey which on instructions from the Council was made by the standing committee on hospitals and clinics. This survey on the "California Clinic Problem" is the work of Dr. John C. Ruddock of Los Angeles and contains many facts worthy of the attention of members of the California Medical Association. If in places the information given in his report seems incomplete, such absence is due largely to the difficulties encountered in obtaining the information from the officials of certain clinics. This "clinic" situation is one that merits attention from many angles. It must be evident to all, that the medical profession, whose members give the professional services which make possible the existence of public and charitable clinics, has not only a very proper right, but an obligation to have definite information concerning the public and other hospitals and clinics within the state, so that abuses which, under one guise or another, may be creeping into such institutions can be rectified.

* * *

Paper by Doctor Brown on "The Business of Medicine."—The third paper to which attention is called is that of Dr. Rexwald Brown of Santa Barbara, who discussed a more general, though none the less important, topic, "The Business of Medicine." It is most desirable that members of the medical profession should understand the problems outlined by Doctor Brown and that they should strive to govern their actions accordingly. In the past there has been too little discussion of such matters in the meetings of our medical societies. Unless the medical profession awakens to the nature of the conditions which exist about it, and works for a betterment of deficiencies where such exist, there is danger that the future of medical practice may be seriously handicapped by unwise legislation or other procedures instituted largely by laymen.

* * *

County Societies Should Discuss These Medico-Economic Problems.—Officers of county medi-

cal societies are again urged to give these economic problems a place on meeting programs. Members who are interested should feel free to offer their services in the presentation of such reports or discussions. These medico-economic problems have an intimate relationship to the professional interests of every one of us. If we study and discuss them it will be possible for us to arrive at certain premises and joint conclusions and thus pave the way for rational action. If only a few members do the work of investigation and study, it will be found that when plans for action are presented, that no harmony of effort will be in evidence, because too many members will be pulling backward instead of forward. The time necessary to read the three articles referred to is not very great. Every reader of CALIFORNIA AND WESTERN MEDICINE is urged to take that time out of regard for his personal interests and also because of those of the profession at large.

A PROPOSED CHIROPRACTIC INITIATIVE

A Proposed Chiropractic Initiative Granting More Powers.—For some time past a proposed initiative has been circulated by certain groups of California chiropractors. Whether or not this initiative will receive a sufficient number of signatures to place it on the ballot is not yet known. It is here mentioned because it brings before us a picture of what usually happens when a commonwealth sees fit to recognize cults or sectarian schools of healing art practice.

The advent of the chiropractors into California is all a quite recent event. Their compulsory standards of preliminary education in the past were, and are still, quite far removed from the basic high school education and two years or more of liberal arts work which is demanded by regular or non-sectarian medical schools. Their compulsory professional curriculum and training has been, and is still, far removed from the professional training requirements of non-sectarian medicine. Nevertheless the state of California saw fit about eight years ago, through legislative and initiative action, to legally recognize this group of cultist practitioners, the state presumably being satisfied with the lower standards of preliminary education and of professional training (through acceptance of the specious plea that only a limited number of diseases would be treated, and these by non-medical and non-surgical methods).

Such initial recognition and licensure by a commonwealth is all that in the beginning is ever asked for by a cult seeking legal recognition. The leaders of such cultist groups know that once such initial legal recognition is granted, other legal privileges are almost certain to follow.

* * *

What Are the Educational Standards of Chiropractors.—The *Los Angeles Herald* of June 11

printed an article on "Chiropractors Split on Law Revision." An excerpt from this article is worthy of perusal by all who believe that the state should protect the public health by refusing legal recognition to practitioners of the healing art, unless such applicants have given adequate evidence of suitable preliminary education and of professional training.

The excerpt sheds some light on all this and is as follows:

"Chiropractors of the state today are divided over a proposed initiative measure governing the profession in California, which is being sponsored by the Progressive Chiropractic Association and a faction of the California Chiropractic Association.

"The California Chiropractic Association officially, however, is vigorously fighting the proposed measure on the ground that it requires study of medical and surgical subjects assertedly foreign to the chiropractic profession and on the ground that it places dictatorial powers in the hands of a state board.

"According to Charles H. Wood, one of the leading members of the Progressive Chiropractic Association, the principal change in the law is that it enables the board to deny graduates of any chiropractic school not providing the curriculum prescribed in the proposed act, the right to practice in California.

"Under the provisions of the proposed law, the board would have power to refuse examination to graduates of schools not having the curriculum prescribed in the act,' Dr. Wood said. 'Under the present law, the board has no power to investigate the schools whose graduates apply for a certificate to practice.'

"As a matter of fact, the board at present is enjoined by the courts from doing so, and must accept the certification of the schools as to the study of the graduates without any determination as to whether the school is a fake or not.'"

* * *

Other Provisions of the Proposed Initiative.—As regards the proposed initiative, we have been told there are provisions therein permitting chiropractors to do "minor surgery" (no differentiation being made as to what "minor surgery" covers); and that it provides that chiropractors should be eligible to places on the attending and resident staffs of public state, county and city hospitals; and that death certificates, industrial accident and similar reports signed by chiropractors should have full legal recognition.

As previously stated, it is not known whether a sufficient number of signatures will be secured (some ninety thousand or more are needed) to place this proposed initiative on the ballot in the coming state election. If it does find a place on the ballot, it is evident that the matter should receive the attention of all citizens who believe that California should uphold public health standards by denying special healing art privileges to those applicants whose preliminary education and professional training, according to the best modern day experience, are inadequate.

SUMMER DAYS ARE HERE AGAIN—THE VALUE OF A VACATION OUTING MEETING

A Respite from: Medical Meetings Without End.—Once again the summer or vacation season is at hand. With it comes a temporary respite for physicians from the grind of trying to attend society and hospital staff meetings and what not. To be relieved nowadays of the responsibility of being present at the many evening meetings a physician is supposed or is called upon to attend, in itself is almost sufficient to produce the mental quietude which is supposed to be associated with vacation relaxation.

* * *

Why an Outing Meeting Is Advocated.—With this prelude it may seem inconsistent to advocate any kind of additional meeting of medical men at this season of the year.

And yet that is what is here proposed, and the county medical societies which make up the California, Nevada and Utah Medical Associations are urged to take a hand in an outing or good fellowship meeting on some Saturday afternoon or Sunday of the present summer season.

Medical men need to know one another better than they do, and to rub elbows with one another more often. It gives a shock when we look around at the faces in a meeting of one of our larger medical societies or hospitals, to note how many faces we do not know or only faintly recognize. This non-acquaintance or aloofness, arising very properly out of certain responsibilities and dignity in our calling and also because of the individualism associated with successful practice, is pardonable when one appreciates that it originates from no narrow or petty motives. It is not to our credit, however, if we fail to make an effort to break down this undesirable restraint. Physicians need to know one another in somewhat direct and intimate fashion and contact. As successful physicians, they consciously or unconsciously know their patients and sense and use their knowledge of their patients' mannerisms and outlooks as aids in their work. Similar knowledge of one's colleagues would promote better understanding and appreciation of one's fellow physicians.

The reports of meetings which are sent in from month to month to CALIFORNIA AND WESTERN MEDICINE by the secretaries of many of our county medical societies indicate that this need of good personal fellowship and understanding is being fostered by many of the county units. In a goodly number of the smaller county organizations it seems to be quite the fashion for the members to dine together and afterward to have a meeting of the society, or to have an informal supper follow the meeting. That is excellent. It is hoped that more of the county societies will try out such a plan.

It is to be regretted, however, that in the larger centers of population—precisely the environments in which physicians, by and large, personally know least of one another, and where the fellowship of personal contact is needed most of all—that these get-together meetings with suppers are only occasionally held.

How the Merritt Hospital of Oakland and the California Hospital of Los Angeles Hold Outings.—For the larger societies—and for the smaller units also—the plan of holding an annual outing after the fashion of some of our California hospital staffs is advocated. For example, the attending staffs of the Merritt Hospital at Oakland and the California Hospital at Los Angeles annually hold such outings. The editor has attended outing meetings of each of these staffs and can bear witness to the enjoyable times and splendid fellowship everywhere in evidence at their gatherings. The programs are of the most informal nature, the effort being made to provide an adequate number of games in a suitable place out under the trees, so that all present may forget, for the moment, that they are mature and dignified physicians, to be what in the last analysis we all are, or should be—just grown-up boys. The outing announcements of the two hospitals referred to are usually most original and are an index of the wholesome spirit in which the staff members join together to spend a half day or more with one another.

For the older men who so desire, cards, target shooting, quoits and similar games. For the younger staff members, races, such as three-legged, spoon, potato, can be indulged in. The younger members can have a baseball game with the older boys. If a barbecue dinner can be arranged, it can be enlivened with songs by professional or other talent, and if desired a certain number of brief after-dinner talks, humorous and otherwise, can be put on.

* * *

An Active Committee Can Sponsor a Successful Meeting.—A small committee of members who believe in such an outing and who have the enthusiasm to work out the details to put it across, is all that is necessary to create a successful gathering, provided, of course, that by word of mouth or through printed circular the other members are infected with the spirit of coöperation.

No excuse is made for presenting this seemingly humble and non-scientific matter in these columns. The medical profession needs a bit more of the human element in its organization work. Its members, who are called upon day in and day out to meet, and to often carry the serious health and life problems of their patients, themselves need a bit of the relaxation which physicians are so prone to advise for hard-working and overtensioned patients. Let us ourselves take some of this medicine which we so often prescribe for our lay fellows, especially when it is of so sensible a nature and really so much needed.

The year 1930 will be a good year in which to try out such an outing. Members of county societies who have viewpoints such as are here outlined should feel free to discuss the subject with their

society officers, so that the plan may be given a trial in their respective communities. An outing is such an easy thing to accomplish if gone about in the right way, and can mean so much to medical organization and to all concerned. It is not necessary to have a one-hundred-per-cent attendance. Such an outing can be a great success even with only a limited number of members. Those who attend will profit therefrom and make possible a larger turnout in succeeding years.

To repeat, why not try out this vacation outing meeting plan in this summer of 1930?

THE ADVERTISING PATRONS OF CALIFORNIA AND WESTERN MEDICINE— WHY THEY DESERVE YOUR SUPPORT

Income to California Medical Association from Advertising Patrons of CALIFORNIA AND WESTERN MEDICINE.—Those members of the California Medical Association who took the time to read the report of the editors which was printed in the June issue of CALIFORNIA AND WESTERN MEDICINE may have noted that the cost of publication of the official journal was largely covered by the income received from advertisements. The fact that CALIFORNIA AND WESTERN MEDICINE has such a large and excellent group of advertising patrons—a considerable number of whom have had their announcements in your journal for many years—must be construed as evidence that CALIFORNIA AND WESTERN MEDICINE is truly a good advertising medium for firms who desire to bring their products to the attention of members of the medical profession. It also may be assumed therefrom that the well-known firms which have maintained advertisements for years in CALIFORNIA AND WESTERN MEDICINE must have done so because of reciprocal patronage by members of the California Medical Association.

* * *

Why an Appeal to Coöperate With Advertising Patrons of CALIFORNIA AND WESTERN MEDICINE Is Made.—Attention is called to the past creditable record of your official journal in these matters, in order to emphasize the desirability and necessity of increased coöperation and reciprocity with the advertising patrons of CALIFORNIA AND WESTERN MEDICINE. An increase in advertising revenues would make possible a better and enlarged journal and would permit, also, more generous allocation of funds for the other numerous activities to which the California Medical Association is committed in its efforts for efficient medical organization.

It is the hope of the officers of the California Medical Association that members of the California, Nevada and Utah Medical Associations will cultivate the habit of routinely inspecting the advertising pages of CALIFORNIA AND WESTERN

MEDICINE, and wherever possible of giving preference to firms which through their advertising patronage help support the official journal of these associations.

* * *

More Advertising Patrons Needed from Southern California.—For many years most of the advertisements have come from firms having their headquarters at San Francisco. This may have come about because the journal has always been printed at San Francisco and because the advertising representative has likewise had his base headquarters in that city. With the increasing population of Southern California and the increasing number of physicians there should be a larger representation of firms from that section in the advertising pages.

Members of the Association who deal with firms who could become possible advertising patrons are requested to send in the names of such houses to the central office of the Association at San Francisco. Such information will be gladly received by the officers and an effort made to reach such prospective advertisers.

* * *

Mention CALIFORNIA AND WESTERN MEDICINE Whenever Possible.—On this same subject, members of the California Medical Association are requested to invariably mention CALIFORNIA AND WESTERN MEDICINE when they purchase articles from firms who carry announcements in its pages. Firms are always anxious and glad to have this information because it gives a check to show that money so spent for advertising is well spent.

Reciprocity is a fundamental requirement in all successful businesses. The California Medical Association has as one of its business and professional activities the publication of an official journal. The needs of that journal should and will continue to grow from year to year. To meet those needs adequate budgets will be necessary. It is possible to obtain the funds for much of such budgets by making the official journal a recognized medium of high advertising value. If the members of the state medical associations of California, Nevada and Utah will recognize the importance of all this, and back up such recognition by coöperation as above indicated, a real service will have been done by them for organized medicine in these three states.

An alphabetical index of all advertisers has a standing place on advertising page 8 of every issue. Get the habit of glancing over it before you buy hospital, medical or surgical goods or needs, or before you send patients to special hospitals, sanatoria or sanitariums. Suggestions for betterment or extension of advertising as well as of the text pages are always gladly received by the editors and officers of the Association. Your coöperation is requested and needed.

MEDICINE TODAY

Current comment on medical progress, discussion of selected topics from recent books or periodic literature, by contributing members. Every member of the California Medical Association is invited to submit discussion suitable for publication in this department. No discussion should be over five hundred words in length.

Medicine

Pellagra.—The cause of pellagra is one of the subjects of medicine about which there is considerable controversy, but in the light of the more recent research the nutritional theory seems to be the most probable.

It is believed that inasmuch as the disease is undoubtedly on the increase in California, a short discussion of it will not be untimely.

During the ten years, 1920 to 1929 inclusive, 449 cases of the disease have been reported to the California State Department of Health.

While this number of cases is not very large as compared with other diseases, the fact that it was more than four and one-half times more prevalent in 1929 than in 1920, should certainly stimulate our interest.

The following is a list of cases as reported year by year:

1920.....	16
1921.....	21
1922.....	32
1923.....	42
1924.....	38
1925.....	63
1926.....	58
1927.....	45
1928.....	61
1929.....	73

This list is probably, to a large extent, made up of cases that have occurred in institutions and public health agencies throughout the state. There unquestionably have been many more that were unrecognized or unreported in private practice.

Increased population alone does not account for the increase, for the population in 1920 was 3,426,861 and was approximately only 4,556,000 in 1928. In 1920 there was reported one case for approximately every 215,000 inhabitants, while in 1929 the ratio was about one reported for every 62,500.

Evidently there is something in the present economical, nutritional or hygienic condition of our population that is more marked than it was in 1920.

In the September 2, 1927, issue of the United States Public Health Report, Goldberger reiterated his nutritional theory and gave a short description of the disease.

He stated that the disease was in no way communicable; that no germ had been found and that experiments in which inoculation with blood, saliva and other body discharges from pellagrins, failed to transmit the disease. On the other hand, he found that restricting the diet in certain proteid foods in healthy individuals did produce

the chain of symptoms which we know as pellagra.

He believed that these symptoms were caused by the deficiency of some vitamin or vitamins which he designated as P-P (pellagra-preventing) vitamin. In his experiments he found that such foods as beans, peas, lean meat, milk and powdered yeast were rich in P-P, particularly the latter. Fruits, potatoes, turnips, string-beans, tomatoes, cabbage and spinach also contain P-P but in smaller amounts.

During the past four or five years, in our work at the Alameda County Health Center, we have been struck by the great increase in the number of pellagrins who are alcoholics. The histories of these individuals show they had been well until they went upon a prolonged spree and that the first symptoms of the disease had appeared immediately thereafter. How much of this condition can be attributed to alcohol and how much to the lack of proper diet during the spree is conjectural.

For prevention and treatment of the disease, Goldberger advocated milk (about two pints daily); lean meat (beef, mutton, pork, fish, fowl), one-half pound per day; and powdered yeast, one ounce per day. This latter, when killed, is richer in P-P vitamin than any other substance known. The dry yeast should be powdered and then boiled in water for one minute before using.

During an actual or impending attack one should begin with foods rich in P-P and at the same time within the capacity of digestion. It is best to begin with powdered yeast (prepared as noted above); milk (sweet or buttermilk); lean meat (fresh meat juice, scraped beef); egg yolk; tomato juice (fresh or canned); and bean or pea puree. As improvement occurs increasing amounts of solid foods may be added.

F. H. STIBBENS, Oakland.

Eye

Foreign Bodies in the Cornea.—All cases of foreign body in the cornea are potentially dangerous, and should be treated by an oculist if possible. The first step in treatment is to find the foreign body, and for this purpose, perfect light, preferably a Hammer lamp, and magnification are essential. A Berger loupe is usually adequate, but in some cases a slit lamp and corneal microscope may be necessary. The foregoing would seem obvious, but every oculist has seen cases in which very strenuous efforts had been

made to remove a spot of pigment from the iris, under the impression that it was a speck in the cornea.

Anesthesia must be complete, since it is impossible to hold one's eye still, when it is painfully traumatized by a spud. My own preference is a drop or two of cocaine solution five per cent, followed by holocain solution one per cent, at intervals of two minutes. Cocaine alone tends to dry the cornea, increasing the danger of ulceration, and holocain is very irritating to an inflamed eye. Some antiseptic, such as mercurochrome, which is always available, should be instilled into the conjunctival sac, and the eye irrigated in a moment or two.

Again light and magnification are essential. The patient should be directed to look at something with the uninjured eye, so that neither eye will move. An attempt should be made at removal with a bit of moist cotton, on a toothpick applicator. Failing in this a spud should be used, the pattern to be decided by individual preference. The lids of the injured eye should be held by pressure of the thumb and finger of the left hand. The spud is held by the right hand, and the little finger rested on the patient's cheek or nose to secure steadiness. The point of the spud should be inserted beneath the edge of the foreign body, to lift it out. Every bit of it should be removed, and in the frequent cases where the surrounding tissue is stained or burned, this, too, should be taken out with a corneal bur.

After-treatment is very important. A drop of antiseptic should be instilled, and in all but the mildest cases, the eye should be bandaged for at least twenty-four hours, or until it is quiet. This protects the damaged cornea, and minimizes the danger of ulcer. Patients appreciate holocain one per cent either solution or ointment, to keep the eye comfortable after the anesthetic wears off.

SAMUEL A. DURR, San Diego.

Dermatology

Thallium Acetate.—Several years ago thallium was used for its antihydrotic action in combating night sweats of tuberculosis, and in many cases so treated loss of hair was noted. In 1900 Buschke, in experiments upon mice, rats, guinea pigs, apes, and rabbits, obtained the same results. By giving the animals two homeopathic tablets of thallium acetate dissolved in water and mixed with their food, he observed that the hair fell out in a few weeks, first in patches, later totally, and that animals could be kept naked by suitable feeding without there occurring any severe toxic disturbances.

According to him, the vibrissae, the sensitive hairs of the nose and face, were never affected with alopecia by thallium, because these hairs differ from the other hairs on the body, not only anatomically, but also in function, and are connected with the central nervous system directly;

while the other hairs are under the influence of the sympathetic system. This can be demonstrated by stimulation of these nerves or by their section.

If these entirely naked animals were fed larger doses of the drug, growth stopped, or remained far behind others, sexual impulse ceased or failed to develop, psychic disturbances occurred, and altogether they presented a cretinoid appearance.

From these and other observations, he concluded that its action was due to some injury to the endocrine apparatus as well as to the sympathetic nervous system with which it is so closely bound up. Owing to this epilating action which the drug exerts, it has been used rather extensively during the past three years in the treatment of ringworm and favus infection of the scalp in children. In many instances it has supplanted the use of x-ray in producing the complete temporary alopecia, so necessary to the rapid cure of these diseases. Not that the epilation produced by x-ray is not just as efficacious or perhaps more so than that produced by thallium, but its use requires expensive apparatus and special training, neither of which are possessed by other than the dermatologist as a rule. Thallium, on the other hand, is inexpensive, a large number of children can be treated in a short time (a distinct advantage in orphanages, etc.), and it can be used by the general practitioner.

Before using it the clinical diagnosis should be confirmed by a microscopical examination of the infected hair, and the urine examined to be sure of the absence of albumin (thallium is excreted by the kidneys, and they are especially liable to injury by the toxic elements in the drug). The child is then carefully weighed without clothing. For each kilogram of body weight, eight milligrams of thallium acetate dissolved in peppermint water are given by mouth at one dose (it is tasteless). The hair begins to fall in about eight days and, when successful, alopecia is complete by the twenty-first day. The epilation is spontaneous in about 50 per cent of the cases, and in the others it must be completed by extracting the loose hairs by means of adhesive strips, which is entirely painless.

The hair begins to grow again in about four weeks and in the interval the scalp should be painted with tincture of iodine daily and a 10 per cent sulphur ointment also applied daily. In three months regeneration is nearly complete.

Toxic symptoms, such as pains in lower limbs (peripheral neuritis), some loss of appetite and an occasional headache appear in a few cases. These are promptly relieved by rest in bed.

Thallium should not be used for this purpose in children approaching puberty because of its toxicity in such large doses.

ERNEST K. STRATTON, San Francisco.

Urology

The Innervation of the Kidney.—The innervation of the kidney has been a question about which considerable difference of opinion has always existed and still does. The fact that a kidney can be successfully transplanted to another part of the body of the same animal and function normally in its new position seems to disprove the necessity of any central innervation. Studies of such kidneys, however, have not been sufficiently extensive for any real conclusion. Condorelli (*Arch. di patol. e clin. med.*, vi, 281-304, 1927) has conducted some rather interesting experiments, with conclusions that are the opposite of the above experimental indications. Structurally, fibers of the vagi and splanchnics are so intimately associated at the level of the celiac axis as to be inseparable by dissection. In order to estimate the relative influence of these two sets of nerves upon renal activity, he used as an index of function the localization of carmin in different parts of the kidney after intravenous injection. Suzuki's formula of a solution of carmin was injected intravenously into rabbits and white mice and the animals killed thirty minutes after the injection, and their kidneys studied macroscopically and microscopically. To test the influence of the vagus, it was cut, electrically stimulated, injured by atropin or activated with pilocarpin. If the vagus was cut on one side, there was the same effect in both kidneys; the tubuli recti and the collecting tubules on both sides always were found to be free of carmin, whereas in control animals usually these portions of the secreting unit contained cylindrical masses of carmin. Furthermore, the characteristic intra- and extracellular granules normally present in the convoluted tubules were absent after vagi section. The glomeruli were always free of carmin granules in control animals and also after vagus section. Upon electrical stimulation of the left vagus in the neck, the kidney of the same side had convoluted tubules and Henle's loops filled with carmin, and the cells lining these portions were also filled with finely stained granules. The collecting ducts contained massive cylinders of the dye stuff but the glomeruli showed no change, being empty. In the kidney of the opposite side the same conditions were found, after electrical stimulation probably not so marked. Irritating the nerve with 0.05 milligram of atropin sulphate in a mouse of 30 grams weight produced a marked dye accumulation, and ten times the amount acted in the same way as a strong vagus stimulation. Pilocarpin 0.5 milligram in a mouse increased the rate of carmin excretion noticeably. As a test of the influence of the splanchnics, the left splanchnicus major intrathoracically was cut through and the carmin was injected twenty-four hours post-operatively. The kidneys acted in almost the same way as after vagus stimulation. When the sympatheticus of the neck on one side was stimulated with a faradic current, the excretion of carmin in both kidneys was markedly diminished. It was also found that the injection of 0.02 to 0.01 milli-

gram of adrenalin very markedly diminished the carmin excretion in mice. Complete denervation of the kidney had a very marked inhibitory effect on the excretion in this kidney as well as a noticeable diminution of the other kidney, but it is possible that the cause of this is to be found in the trauma of operation. The experimenter concluded that the vagus has an activating influence upon the two kidneys which is particularly marked in the convoluted tubules, whereas the sympatheticus acts to diminish secretion, especially inhibiting the epithelium of the tubules.

FRANK HINMAN, San Francisco.

Automobile May Be Safely Driven by the Physically Disabled—On the Other Hand, a "Hair Trigger" Mentality May Be a Handicap For Safe and Sane Driving.—An interesting sidelight on contributing factors to public safety is announced through the psychological tests for automobile operators conducted at Ohio State University by Dr. Knight Dunlap of the department of psychology at Johns Hopkins University.

For these experiments revealed that a greater asset than intelligence in a driver is self-control. Excellent motor drivers may be made from men who cannot pass a simple intelligence test. Properly equipped cars may be handled by the disabled, with either a leg or an arm missing. On the other hand, a "hair trigger" mentality may be a handicap for safe and sane driving. Even the deaf can make good drivers. But a deaf pedestrian is in a bad way—very bad.

Common-sense training in the manipulation of steering wheel, brake, and clutch, and a knowledge of and ability for gear shifting are demanded, according to Dunlap.

The man who can see but who won't watch is more of a menace than a man with impaired eyesight who keeps on the alert.

According to Doctor Dunlap, a color-blind person can become a safe driver. Doctor Dunlap declares all persons are color-blind except when they look squarely at an object. Since an autoist usually observes a traffic signal out of the corner of his eye, because he has to watch pedestrians and other motorists at the same time, signals are designed on the assumption that all motorists are color-blind. Fortunately, there are two colors which a color-blind person can distinguish as well as a man with normal vision—orange red and blue-green. Signal engineers are adopting these colors.

Ingenious apparatus disclosed these and other facts about motorists in Doctor Dunlap's tests. In one test of eye, hand, and foot coördination, subjects sat at the wheel of a dummy automobile. This had the steering mechanism, brake, and clutch of a light car, and an electric seat that registered the "driver's" movements. Six feet in front, an illuminated chart represented a highway.

Along this imaginary highway the subject drove his car. One pointer on the chart showed the course of the test car. Another pointer represented an imaginary vehicle coming toward it.

A "noise barrage" was the means of testing a driver's lack of "emotional stability"—in other words, his tendency to fly off the handle or become confused by strange sights and noises. The subject sat in a padded chair, a pair of electrified handles in his hands. These carried a current far too mild to be felt, for the object was to detect the extremely delicate changes in the body itself. Suddenly bells clanged. Lights flashed crazily. Buzzers whirled. A gun cracked, so close that the subject could smell the burning powder.—Meanwhile a delicate galvanometer, an electric meter in the next room, measured the subject's ability to keep calm. Hardly anybody but truck drivers survived this test.—*Illinois Medical Journal*, June 1930.

STATE MEDICAL ASSOCIATIONS

CALIFORNIA MEDICAL ASSOCIATION*

LYELL C. KINNEY President
JUNIUS B. HARRIS.....President-Elect
EMMA W. POPE Secretary

COMPONENT MEDICAL SOCIETIES

ALAMEDA COUNTY

The Alameda County Medical Association was unusually fortunate in having as a guest speaker at a special meeting held on Saturday evening, July 5, the well-known orthopedist, Surgeon-in-Chief of the Accident Hospital of Vienna, Dr. Lorenz Böhler.

Dr. Böhler talked at great length on the treatment of fractures of various types, illustrating his talk by lantern slides and moving pictures. He showed the common, as well as the unusual, types of fractures of practically all of the bones of the skeleton, together with his methods of treatment, which were unique in that he uses twenty cubic centimeters of a two per cent novocain solution to completely anaesthetize the part before adjustment is made. He also illustrated in detail the use of the unpadded plaster cast, of which he is the originator. He illustrated a novel method of keeping the salient points of the history and the nature of the injuries before the physician at all times by recording them on the plaster cast and roughly sketching an illustration of the fracture.

This was Dr. Böhler's only lecture in the Bay Region, and those who heard him agree that he is a master in his line.

GERTRUDE MOORE, *Secretary*.



NAPA COUNTY

The regular monthly meeting of the Napa County Medical Society was held Wednesday, June 4, at the Napa Valley Country Club. A splendid banquet preceded the business meeting, which was opened by Dr. G. I. Dawson, president. It was moved and carried that Napa County Medical Society approve the appointment of Doctor Abbot, of Alameda County, as a member of the Board of Medical Examiners.

The following members from Sacramento favored us with a most interesting program.

Dr. F. F. Gundrum, "Irregularities of the Heart."

Dr. T. R. Haig, "Low Back Injuries."

Dr. Harry M. Kanner, "Low Flap Caesarean," illustrated with lantern slides.

Dr. J. B. Harris, "Impending Medical Legislation."

Members present: H. V. Baker, W. L. Blodgett, M. M. Booth, I. E. Charlesworth, H. R. Coleman, G. I. Dawson, C. A. Gregory, C. A. Johnson, A. K. McGrath, D. H. Murray, C. E. Nelson, R. S. Northrop, J. Robertson, L. Welti.

Visitors: J. W. Green, Vallejo; J. E. Hughes, Vallejo; M. K. Lewis, Petaluma; A. McLeish, Veterans Home; S. Z. Peoples, Petaluma; H. S. Rogers, Petaluma; J. W. Sewel, Petaluma; D. B. Williams, Imola.

C. A. JOHNSON, *Secretary*.



SANTA BARBARA COUNTY

The regular meeting of the Santa Barbara County Medical Society was held, according to custom of many years, in Santa Maria, July 14. A fine barbecue

* For a complete list of general officers, of standing committees, of section officers, and of executive officers of the component county societies, see index reference on the front cover, under Miscellany.

dinner was served at the Santa Maria Club to sixteen members, five visitors from Los Angeles, and eleven from San Luis Obispo County.

There being nothing of importance, routine business was dispensed with and Dr. O. C. Jones, vice-president, introduced the speaker of the evening, Dr. Howard L. Updegraff, of Los Angeles. He gave a very full and interesting talk on "Methods of Reconstructive Surgery," profusely illustrated by colored slides and moving pictures.

The great recent advance in removal of deformities, new technique in skin grafts for forming new noses and restoration following traumatism, cancer, ulcerations and burns on the face and body.

Models, moulds and methods were graphically shown.

Discussion by Dr. J. D. Lewis.

PHILIP C. MEANS, *Secretary, pro-tem*.



SANTA CLARA COUNTY

The annual meeting of the Santa Clara County Medical Society was held in the Society Rooms of the Medico-Dental Building, June 18. The retiring president, Dr. E. Paul Cook, called attention to the fact that for the previous year the average attendance at the meetings was sixty-four or 43 per cent of the membership.

During the past year, under the chairmanship of Dr. Earl O. G. Schmitt, a county medical library has been established in the Society Room of the Medico-Dental Building, where over forty of the leading medical magazines will be regularly received.

The following officers were elected for the ensuing year:

President, Dr. C. M. Burchfield; first vice-president, Dr. George L. Barry; second vice-president, Dr. Robert A. Powers; third vice-president, Dr. R. H. Prien; secretary, Dr. Dudley Fagerstrom; assistant secretary, Dr. Lucas W. Empey; treasurer, Dr. Harry J. Hoag; councilors-at-large, Dr. E. P. Cook, Dr. A. A. Shufelt, and Dr. Earl O. G. Schmitt.

JOHN HUNT SHEPHARD, M. D., *Assistant Secretary*.

CHANGES IN MEMBERSHIP

New Members

Fresno County—Carl H. Shuck.

Humbolt County—Lloyd G. Tyler.

Kern County—Henry G. Crease.

Riverside County—Lewis P. Bolander.

San Diego County—Axentie T. Babienco, Otto August Houzvicka, Ralph Kaysen.

Siskiyou County—Louis Joseph Lista.

Resignations

John R. Williams, from Santa Clara County.

Martin McAulay, from Monterey County.

Deaths

Gwaltney, John Sanford. Died at San Pedro, July 2, 1930, age 71 years. Graduate of Keokuk Medical College, Iowa, 1891. Licensed in California, 1898. Doctor Gwaltney was a member of the Los Angeles County Medical Association, the California Medical Association and the American Medical Association.

Schmitz, John. Died at Los Angeles, May 31, 1930, age 75 years. Graduate of Rush Medical College, Chicago, 1882. Licensed in California, 1888. Doctor Schmitz was a member of the Los Angeles County

Medical Association, the California Medical Association and a Fellow of the American Medical Association.

Watters, Peter Kemp. Died at Watsonville, June 24, 1930, age 76 years. Graduate of State University of Iowa College of Medicine, Iowa City, 1879. Licensed in California, 1893. Doctor Watters was retired, a former member of the Santa Cruz County Medical Society, the California Medical Association and the American Medical Association.

Weber, Philip Henry. Died at Yosemite, July 7, 1930, age 49 years. Graduate of Cooper Medical College, San Francisco, 1905. Licensed in California, 1905. Doctor Weber was a member of the Alameda County Medical Society, the California Medical Association and a Fellow of the American Medical Association.

THE WOMAN'S AUXILIARY OF THE CALIFORNIA MEDICAL ASSOCIATION*

Officers Elected, Woman's Auxiliary of the American Medical Association.—The newly elected officers of the Woman's Auxiliary of the American Medical Association for the coming year are:

President, Mrs. Newton Hunsberger, Norristown, Pennsylvania.

President-elect, Mrs. A. B. McGlothlan, St. Joseph, Missouri.

First Vice-President, Mrs. Southgate Leigh, Norfolk, Virginia.

Second Vice-President, Mrs. James Blake, Hopkins, Minnesota.

Third Vice-President, Mrs. C. W. Garrison, Little Rock, Arkansas.

Fourth Vice-President, Mrs. James F. Percy, Los Angeles.

Treasurer, Mrs. F. L. Adair, Chicago.

Recording secretary, Mrs. A. T. McCormack, Louisville, Kentucky.

Corresponding secretary, Mrs. H. C. Podall, Norristown, Pennsylvania.

Directors, Mrs. Basil L. Connelly, Detroit; Mrs. Ephraim R. Mulford, Burlington, New Jersey; Mrs. Frank W. Cregor, Indianapolis.



A letter from the secretary-treasurer of the Woman's Auxiliary of the California Medical Association to the women of the Auxiliary:

Have you heard the good news? Our state president, Mrs. James F. Percy, of Los Angeles, has become our national fourth vice-president. I am sure you all wish to congratulate Mrs. Percy for this honor she brings back to us all.

Since the Del Monte meeting, I have been getting acquainted with the office of secretary-treasurer and feel most enthusiastic about the work that was accomplished by Mrs. Rogers and Mrs. Cushman last year and the work that can be accomplished this year. Of course, in order to make this organization 100 per cent we must all be interested and endeavor to interest every other woman eligible for membership. This we must do by making our meetings interesting and purposeful.

No organization can live without a purpose. The auxiliaries have so many vital things they can be doing that it is difficult to choose what to do first. Mrs. George H. Hoxie, the retiring president of the Woman's Auxiliary of the American Medical Association, has said, "Educate yourself in the disease prevention and health promotion and then get a strategic place in some other women's organization and carry the educational work with you." With this in mind, the National Program Committee has prepared a series of study programs, which I am mailing to all

* As county auxiliaries to the Woman's Auxiliary of the California Medical Association are formed, the names of officers should be forwarded to the state secretary-treasurer, Mrs. Dexter R. Ball, 2419 Bonnie Brae Street, Santa Ana, and to the California Medical Association office, Room 2004, 450 Sutter Street, San Francisco. Brief reports of county auxiliary meetings will be welcomed for publication in this column.

of the county units, and hope this will give you some definite work to do in "educating yourselves." Dr. William Duffield suggested, in his talk at Del Monte, a list of books to read and discuss. These will be found at the end of Mrs. Cushman's minutes of the Del Monte meetings in the June issue of CALIFORNIA AND WESTERN MEDICINE.

The object of the officers this year is to make this auxiliary permanent and 100 per cent in every way. The state dues for 1930 to 1931 were lowered as one step in this direction. The programs for study should be another step and the book reviews another.

May I give you some facts about the California Auxiliary? There are forty County Medical Associations in the state, with a total membership of 4,854 physicians. Doctor Duffield estimates that there are three women eligible to the auxiliary for each of these physicians. That would be 14,562 women in the state that *could* be members. What a potential force this great number would be if their efforts were intelligently and harmoniously coordinated!

Eleven county auxiliaries were formed in California since May, 1929. This is 27 per cent of the counties. The total paid-up membership of the units is 675. This is only four per cent of the eligible women in the state. These are distributed in the following counties:

Alameda County Auxiliary.....	58 members
Contra Costa County Auxiliary.....	17 members
Kern County Auxiliary.....	16 members
Los Angeles County Auxiliary.....	436 members
Monterey County Auxiliary	12 members
Napa County Auxiliary	15 members
Orange County Auxiliary.....	40 members
San Bernardino County Auxiliary	11 members
San Diego County Auxiliary	44 members
Santa Barbara County Auxiliary.....	7 members
Sonoma County Auxiliary.....	19 members

No organization can exist without members and new life. But with such a start and with the study programs, the book reviews, the lower dues and educational talks, enough interest should be aroused in every county to make this a very strong and enthusiastic association.

MRS. DEXTER R. BALL, *Secretary-Treasurer.*



WOMAN'S AUXILIARY OF LOS ANGELES COUNTY MEDICAL ASSOCIATION

Mrs. Philip Schuyler Doane, first vice-president, presiding in place of Mrs. J. F. Percy, at the large and enthusiastic meeting of the Woman's Auxiliary, on June 19, in the Friday Morning Club Building. Mrs. Doane paid our absent president, who is attending the meeting of the National Auxiliary in Detroit, a well-earned tribute, referring to the high honor accorded Mrs. Percy at Del Monte in making her president of the State Auxiliary as being an honor to our Los Angeles County Auxiliary as well, since Mrs. Percy still remains with us as our president. Mrs. Doane then presented Mrs. Dexter R. Ball, of Santa Ana, secretary-treasurer of the State Auxiliary, who was a guest of the afternoon.

In introducing Dr. William Duffield as the speaker, Mrs. Doane made a happy reversal of the usually stilted introductory form, paying a graceful compliment to the speaker by introducing the audience to him. Doctor Duffield, she said, was a man who finished whatever he started, who believed whatever he said, who had the courage of his convictions. This estimate was confirmed in the substance of Doctor Duffield's address.

Needless to say, only the highlights of such an address, cryptic with useful suggestions and good advice, can be touched upon here. The speaker dwelt forcefully upon the possibilities of this Woman's Auxiliary organization and made the statement that if it accomplished nothing more than that of promoting acquaintanceship and friendship among the families of physicians, its influence for the betterment of the community and of the medical profession itself, would be tremendous.

Doctor Duffield spoke for only one hour, but in that hour he condensed a wealth of practical suggestions

for the good of the community, the advancement of the medical profession and the exalted position that may be attained by the Woman's Auxiliary by its active participation. And he expressed his belief that such a position would be attained and this accomplishment greatly enhanced by the activities of the present organization which had so recently begun its important functioning.

A happy social hour at the tea tables followed Doctor Duffield's address. The next meeting of the auxiliary will be held during the third week in October—the announcements carrying the exact date being out about October 1.

CORA YOUNG WILLIAMS, *Publicity Chairman.*

UTAH STATE MEDICAL ASSOCIATION

H. P. KIRTLEY, Salt Lake City.....	President
WILLIAM L. RICH, Salt Lake City.....	President-Elect
M. M. CRITCHLOW, Salt Lake City.....	Secretary
J. U. GIESY, 701 Medical Arts Building, Salt Lake City.....	Associate Editor for Utah

OFFICIAL NOTICE—ANNUAL SESSION

The annual meeting of the Utah State Medical Association will be held September 9, 10 and 11, this year.

While the program is not yet definitely outlined the committee has been at work with results. A large number of prominent men have accepted invitations to address the scientific sections, such men as Harlow Brooks, Wirthlin, Ivy, Dean Lewis and Leo Eloesser. Other names, it is expected, will be added. The names cited, however, assure the success of the scientific program of our annual session.

Aside from the scientific element there will be a somewhat elaborate program of entertainment for visiting speakers, members and their wives. The Woman's Auxiliary will coöperate to make this a social success. And then there will be the banquet.

Bill Donohur will probably be the "roast master" for the occasion. If he is, the flow of wit and joviality will be full and constant.

Mark the dates, September 9, 10 and 11, as not open for any other business and come for instruction, pleasure and enjoyment. We want the attendance to be large.

COMPONENT COUNTY SOCIETIES
SALT LAKE COUNTY

The regular meeting of the Salt Lake County Medical Society was held at the St. Mark's Hospital on Monday evening, May 26, 1930.

Meeting was called to order at 8:30 p. m. by President M. M. Nielson. Forty-six members and four visitors were present.

The following clinical program was presented:

"Pemphigus".....	E. M. Neher
Discussed by C. J. Pearsall	
"Lead Poisoning".....	D. L. Barnard
Discussed by J. Z. Brown and F. E. Boucher	
"Pathological Specimens".....	O. Ogilvie
"Gastro-enterostomy".....	Motion picture

The minutes of the meetings of April 28 and May 12 were read and accepted without correction.

The application of J. P. Tuttle was read and turned over to the Board of Censors.

F. M. Poulson was unanimously elected a member of the Society.

President Nielson announced that at the last meeting of the Board of the Radium Corporation \$600 was given the Society for use in defraying some of the expenses of the medical library.

M. M. Nielson appointed a committee, consisting of E. M. Neher, chairman; J. Z. Brown, and C. Shields, to investigate the advisability of the Society forming a credit rating bureau,

Meeting adjourned at 9:45 p. m., after which refreshments were served.

* * *

The regular semi-annual business meeting of the Salt Lake County Medical Society was held at the Newhouse Hotel on Monday evening, June 9.

Meeting was called to order at 8:10 p. m. by President M. M. Nielson. Forty-eight members were present.

A. C. Callister presented a case of "Thoracoplasty."

Committee Reports

A. C. Callister reported the work of the Committee on Public Health and Legislation. E. M. Neher moved that the report be accepted. Seconded and carried.

J. C. Landenberger reported for the Medico-Legal Committee. The report was accepted.

T. C. Gibson moved that the committee be given a vote of thanks for their excellent work in the past six months. Motion seconded and carried.

The reports of the Necrology Committee, J. U. Giesy, chairman, of the Library Committee, W. R. Tyndale, chairman, and of the Committee on Public Lectures, A. L. Huether, chairman, were accepted.

M. M. Nielson reported the action of the Board of the Radium Corporation and handed the treasurer a check for \$600 for use in defraying some of the expenses of the medical library. J. Z. Brown moved that the Society accept the gift and that it extend to the Radium Corporation a vote of thanks. Seconded and carried. J. Z. Brown also suggested that the Society coöperate in every possible way with the Radium Corporation.

The report of the Boy Scouts Committee, J. L. Paul, chairman, was accepted. J. Z. Brown moved that the Society urge the parents of Boy Scouts to consult their family physicians regarding vaccinations, and that the committee notify the local secretary of this action. Seconded and carried.

The Fee Schedule Committee, J. P. Kerby, chairman, presented the new fee schedule for adoption. This report was discussed by Doctors Coray, Phipps, Scott, Viko, Gibson and Beer. W. F. Beer moved that the report be adopted. Seconded and carried.

A. C. Callister, reporting verbally for the Caduceus Committee, stated that the committee had decided to suggest no changes in the handling of the Caduceus tax by the Police Department. The report was accepted.

The report of the Committee on Irregular Practices, D. G. Edmunds, chairman, was accepted after discussion by M. M. Nielson, J. Z. Brown, W. F. Beer and H. S. Scott.

* * *

Fee Table

The following amendment to the By-laws was passed:

"The fee bill adopted at this meeting is intended to represent the average fee under ordinary circumstances, both columns referring to minimum fees, the difference between them indicating common differences, depending upon the responsibility and judgment involved in treating different cases, and the ability of patients to pay. This fee schedule shall not attempt to indicate proper compensation in those cases requiring special skill, extraordinary responsibility, or unusual character of service. The Society recognizes the right of every member to charge what he believes to be a fair and adequate fee for services rendered, or to give the whole or any part of his services in charity; but it will be considered his duty to abide by the fee schedule herein mentioned whenever the circumstances of the patient do not clearly forbid. Any violation of the provisions of said fee schedule solely for the purpose of securing a patient shall be considered ipso facto cause for loss of membership. The usual procedure of this Society in the matter of filing a complaint against a member shall be followed."

* * *

The following resolution was presented by W. F. Beer:

WHEREAS, there are teachers in the Medical Department of the University of Utah who are devoting their whole time to the instruction of medical students, and

WHEREAS, several county medical societies in other states, and the American Medical Association, have an Associate Membership for teachers in medicine who have no M. D. Degree,

THEREFORE BE IT RESOLVED: that the Salt Lake County Medical Society urge the Utah State Medical Association to so change its By-laws that the Salt Lake County Medical Society may form an Associate Membership for the purpose of admitting such teachers.

B. I. Burns moved the adoption of this resolution with the instruction for delegates of this Society to the State Convention to vote for the suggested change in the By-laws of the Utah State Medical Association. Motion seconded and carried.

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J. P. Tuttle was unanimously elected a member of the Society.

The Society then proceeded to the election of delegates to the Utah State Medical Association meeting. The following delegates were elected: E. F. Root, F. M. McHugh, L. J. Paul, E. R. Murphy, B. E. Bonar, M. Schofield, J. A. Phipps, B. I. Burns, and D. G. Edmunds. The following alternates were elected: W. R. Tyndale, M. Nelson, and J. U. Giesy. A. C. Calister moved that three more alternates be elected. Motion seconded and carried. F. F. Hatch, L. W. Ossman, and C. Shields were elected by acclamation.

R. J. Alexander asked that the members of the Society, wishing to serve on the staff of the Salt Lake General Hospital make their applications immediately.

Meeting adjourned at 10:10 p. m.

BARNET E. BONAR, *Secretary*.

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WEBER COUNTY

Weber County Society has suspended meetings for the summer term following the meeting of June 30.

This meeting was one of the high spots in the year's activities, and was opened to all members of the State Association on invitation, the occasion being the presence of Dr. Lorenz Böhler of Vienna, Austria.

At 7:30 on the evening of Monday, June 30, a banquet in honor of Doctor Böhler was held at the Hotel Bigelow, Ogden. Following this the Doctor gave a lecture on his methods on fracture work, which has been recognized as outstanding for years.

The invitation to participate was accepted by numbers of men from the different component societies of the state, and a delightful and instructive evening was spent.

CONRAD H. JENSEN, *Secretary*.

Aspects of Birth Control as It Affects Physicians in Massachusetts.—On May 7, 1930, a meeting was held at the Medical Library by about seventy-five physicians to consider the subject of certain aspects of so-called birth control as it affects physicians in Massachusetts.

Dr. James F. Cooper of New York (formerly of Boston), Medical Director of the American Birth Control League and author of several treatises relating to contraception, addressed the meeting.

He gave a detailed account of conditions leading up to the enactment of laws in the several states and also the federal statute, explaining that the original federal law sponsored by Anthony Comstock was designed to abolish obscene and indecent literature and that no proponent of legislation relating to contraception had in mind a purpose to impose restrictions on physicians in dealing with the advisability of giving information with respect to the prevention of pregnancy.

The wording of the various laws has, however, created doubt as to the possibility of physicians having to meet prosecution based on complaint of some one antagonistic to the practice of giving advice to women who need to be spared the dangers of pregnancy.

Although doctors have been called before the courts because of alleged infraction of the laws relating to this subject none has been convicted; but it was explained that the fear of prevention has led to the conviction that the laws should be clarified so that, although intended to apply only to obscene or indecent literature, there would be no misunderstanding of its intent or misapplication of its purpose. At the present time, it was pointed out, many persons representing physicians and the laity feel that a change in the statutes is desirable.

The most effective organized movement was taken by the National Gynecological Society at a recent meeting in Washington by the appointment of a committee which will work for a modification of the federal statute.

Dr. Cooper enumerated the usual list of diseases which are regarded as justifying contraceptive practice and gave his personal opinion of the relative value of the various methods employed.

The address was a clear exposition of existing conditions and the purpose of those who desire to have the present laws modified. Dr. Cooper offered to supply appropriate literature to anyone who would apply. —*The New England Journal of Medicine*, May 15, 1930.

Yale's Institute of Human Relations.—The mere announcement that Yale University is establishing an Institute of Human Relations sounds as fantastic and presumptuous as the proposal of H. G. Wells to write a history of the world. And yet Mr. Wells did it and it looks as though the few remaining millions necessary to round out the building and endowment program of the so-called Human Welfare Group will be forthcoming. This group will consist of the Yale Medical School, the Yale School of Nursing, the New Haven General Hospital and Dispensary, and this so-called Institute of Human Relations, the whole representing an investment of some \$30,000,000.

Many agencies, religious, moral, social, governmental, medical, etc., are working along their respective lines in an effort to better human conditions. But there has been a surprising lack of correlation of these various activities. This correlation is what the Institute of Human Relations is going to attempt. The Institute in addition to being closely associated with the medical activities of Yale University will also be affiliated with the divinity and law schools, and the departments of psychology and sociology. Thus all university activities which have to do with man's mental, physical, and social welfare will be brought together to some extent under the one roof of the Institute. Research will be an important part of the Institute's work. Members of the graduate schools of medicine, law, and divinity will also have the benefit of instruction in other matters bearing on human welfare than their own.

There are certain subjects which might well be added or substituted if need be in undergraduate medical instruction of today to advantage. As a result of present-day medical training, it is only too easy for the young physician to see only the physical side of the patient and to forget that his mental attitude, family, and financial worries may play an important part in his complaint. We can see a distinct advantage in undergraduate instruction in psychology and sociology in furnishing the young physician of today with that something so valuable in the handling of patients which the family doctor of yesterday possessed in such large measure.

Such a praiseworthy attempt to evolve some solution for some of the tremendous social problems of today merits the support of serious-minded capitalists. That the Institute of Human Relations has obtained the generous support of such individuals as well as grants from the Rockefeller Foundation, the General Education Board, and the Commonwealth Fund, is evidence of the sense of custodianship alive in at least some of our wealthy citizens. The results of this undertaking, which seems almost in the nature of an experiment, will be awaited with considerable interest by medical men especially.—*Minnesota Medicine*, May, 1930.

MISCELLANY

Items for the News column must be furnished by the twentieth of the preceding month. Under this department are grouped: News; Medical Economics; Correspondence; Department of Public Health; California Board of Medical Examiners; and Twenty-Five Years Ago. For Book Reviews, see index on the front cover, under Miscellany.

NEWS

University of California Medical School.—Promotions, new appointments, resignations and changes in titles on the faculty, 1930 to 1931.

Promotions.—From Associate Professor to Professor: Jacob C. Geiger, Professor of Epidemiology; Charles L. Connor, Professor of Pathology. From Assistant Professor to Associate Professor: Esther Rosencrantz, Associate Professor of Medicine; Francis S. Smyth, Associate Professor of Pediatrics; Alfred H. Washburn, Associate Professor of Pediatrics; Max S. Marshall, Associate Professor of Bacteriology. From Assistant Clinical Professor to Associate Clinical Professor: Fred H. Kruse, Associate Clinical Professor of Medicine; Edwin I. Bartlett, Associate Clinical Professor of Surgery and Pathology; John H. Woolsey, Associate Clinical Professor of Surgery; George K. Rhodes, Associate Clinical Professor of Surgery; Lionel P. Player, Associate Clinical Professor of Urology. From Instructor to Assistant Clinical Professor: Elizabeth A. Davis, Assistant Clinical Professor of Medicine; Raleigh W. Burlingame, Assistant Clinical Professor of Medicine; Lewis S. Mace, Assistant Clinical Professor of Medicine; Harry C. Shepardson, Assistant Clinical Professor of Medicine; Robert C. Martin, Assistant Clinical Professor of Laryngology, Otology and Rhinology; Edward C. Bull, Assistant Clinical Professor of Orthopedic Surgery; Myrl Morris, Assistant Clinical Professor of Pediatrics; Lloyd E. Hardgrave, Assistant Clinical Professor of Pediatrics; Kunisada Kiyasu, Assistant Clinical Professor of Pediatrics. From Assistant to Instructor: Paul S. Wyne, Instructor in Homeopathy; Jessie M. Bierman, Instructor in Pediatrics; Huldah Thelander, Instructor in Pediatrics; Horace Pitkin, Instructor in Orthopedic Surgery; Howard A. Brown, Instructor in Surgery; Lewis F. Morrison, Instructor in Laryngology, Otology and Rhinology; Thomas W. Cornwall, Instructor in Pediatrics; Archie D. Sinclair, Instructor in Pediatrics; Jesse L. Carr, Instructor in Pathology.

Western Branch of the American Urological Association.—The next annual meeting of the Western Branch of the American Urological Association will be held in Los Angeles, September 4 to 6, 1930.

October Clinical Congress of American College of Surgeons.—The twentieth annual Clinical Congress of the American College of Surgeons will be held in Philadelphia from October 13 to 17. In addition to the daily clinics in the numerous and well-known Philadelphia hospitals, five evening programs will be presented. Registration fee for attending the Annual Clinical Congress is \$5.

American Protologic Society.—The 1930 meeting of the American Protologic Society was held at Buffalo, New York, on June 22 to 24, 1930. The following officers were elected for the ensuing year: President, Dudley Smith, San Francisco; vice-president, Samuel E. Newman, St. Louis, and secretary-treasurer, Cur-tice Rosser, Dallas.

The 1931 meeting will be held at Philadelphia just prior to the meeting of the American Medical Association.

Course in Cardiology in Paris under Professor Clerc.—In October, 1930, a course in Cardiology will be given at Ward Rabelais, Hôpital Lariboisière, 2 rue Ambroise-Paré, Paris, under the direction of Dr. Antonin Clerc, professor.

The classes will meet every morning at 11 o'clock, commencing on October 20, and again every afternoon at 3 o'clock. The morning sessions will be given over to lectures and the afternoon sessions to demonstrations. The fee for the course will be 600 francs.

A certificate, signed by the Professor and the Dean of the Faculty of Medicine of Paris, will be given after the course to every doctor who has attended it regularly.

For further information and registration, apply to the "Association pour le Développement des Relations Médicales," Salle Béc-lard, Faculté de Médecine, Paris (6e), or to Professor Clerc, 7, rue de Montchanin, Paris (17e).

Herzstein Lectures.—Dr. Charles Singer, Lecturer in the History of Medicine at the University of London, England, will give the second Herzstein Lectures, under the auspices of Stanford University and the University of California on August 7, 8 and 9 at 8:15 p. m., in Lane Hall, Stanford University School of Medicine, San Francisco. The titles of the lectures will be as follows:

Thursday, August 7, "Mediaeval and Modern Medicine—Part I"; Friday, August 8, "Mediaeval and Modern Medicine—Part II"; Saturday, August 9, "The Scientific Works of Leonardo da Vinci." All interested persons are cordially invited to attend.

CORRESPONDENCE

Subject of Following Letter: Recent Book Review on "Sterilization for Human Betterment"

To the Editors:

In the April issue of CALIFORNIA AND WESTERN MEDICINE in a brief review of *Sterilization for Human Betterment*, which is based upon the sterilization work in the institution of California, the author, "E. W. T.," uses the following language:

"Many who have no religious or sentimental objections are still unconvinced that the desirable results are being obtained by the operation. The number of operations alone might lead to false conclusions. Sterilizing 5,000 chronic insane or hopelessly feeble-minded, who are destined to spend the rest of their lives in institutions, is useless. What might help would be sterilizing those discharged from institutions, who go back into the world where, if unsterilized, they might reproduce."

The Human Betterment Foundation fully agrees with the author of this review in the last two sentences. In justice to the state of California, the management of its state institutions, and the medical staffs of its several homes for the insane and feeble-minded, we beg to say that is precisely the principle they have acted upon at all times. "Sterilization is done only where there is apparent danger of defective children." (xii Introduction). Patients who have passed the child-bearing age and those destined to remain in the institution are not sterilized. The records show that one in twelve of the insane in the institutions of California since 1909 have been sterilized. Of the new admissions the ratio is higher, about one in six, just enough to cover those considered likely to produce defective children when returned to their homes.

We submit this correction frankly because we are sure that neither your journal nor the author of the

review of *Sterilization for Human Betterment* would knowingly do injustice to the institutions of California or to the Human Betterment Foundation in its constructive work for the betterment of the race.

Very truly yours,
The Human Betterment Foundation,
E. S. GOSNEY, President.

TWENTY-FIVE YEARS AGO *

EXCERPTS FROM OUR STATE MEDICAL JOURNAL

Vol. III, No. 8, August 1905

From some editorial notes:

The American Medical Association Meeting.—It will be impossible to give anything like a report of the Portland meeting of the American Medical Association in our Journal, but some of the more important points may be briefly touched upon, leaving further details for future issues. The registration was very good; quite as large as could have been expected, reaching something over 1,700. . . .

New Officers of the American Medical Association.—At the next meeting of the Association, which is to be held in Boston, Dr. William Mayo, of Rochester, Minnesota, will be installed as president. . . .

Nostrum Question.—The nostrum evil and the advertising of nostrums in the *Journal American Medical Association* received considerable attention, not only by the House of Delegates, but also in the section on Medicine. The first gun was fired on the afternoon of Monday, when the Missouri delegation presented resolutions from their state association, calling for betterment in the *Journal's* advertising pages. This was followed by a resolution introduced by Doctor Jones, of California, to the effect that the trustees be instructed to abide by the rule which they announced in 1895 and in 1900, requiring formulae with all advertisements of remedial mixtures. . . .

Hope For the Future.—The special reference committee, Doctor Billings, chairman, also recommended that the work of the Council on Pharmacy and Chemistry be endorsed, and that the trustees be instructed to provide for its permanent organization. . . .

Hall of Exhibits.—Many of the objectionable so-called "remedies," which have disgraced the hall of exhibits in previous years, were conspicuous by their absence, though there was quite a sprinkling of objectionable things present. . . .

The American Medical Association Directory.—The publication of a directory of all licensed physicians in the United States has been contemplated by the trustees for some time, and in their report at the Portland meeting they recommended the authorization of this work by the House of Delegates and the purchase of the Standard Directory as a valuable aid in the work. . . .

From an article on "*The Diagnosis of Typhoid Fever. A Paper Addressed to the Country Practitioner*," by Charles Miner Cooper, M. D., San Francisco.

Formerly it seemed as though the isolation of Eberth's bacillus from a patient's blood or excreta would definitely establish a diagnosis of typhoid fever. . . .

. . . The Widal serum test—extremely serviceable, but by no means pathognomonic, and often of no value in early differential diagnosis—has not, by reason of its complex requirements, materially helped the general practitioner. . . .

From an article on "*Practical Application of Functional Diagnosis in Unilateral Kidney Lesions*," by Drs. M. Krotoszyner and W. P. Willard, San Francisco:

Since our publication upon the newer methods of diagnosing unilateral kidney-lesions appeared we have

* This column strives to mirror the work and aims of colleagues who bore the brunt of state society work some twenty-five years ago. It is hoped that such presentation will be of interest to both old and recent members.

had occasion to apply these methods on a comparatively large number of suspected renal affections. . . .

From an article on "*Second Annual Report of Tuberculosis Committee of the Medical Society of the State of California for the Year 1904-5*":

At the last meeting of the Medical Society of the State of California, the Tuberculosis Committee recommended that the work of the committee be continued for the following purposes. . . .

. . . With the result of our efforts to secure the establishment of a state sanatorium, you are doubtlessly all familiar. We secured the passage of a bill through the legislature, but it died in the hands of the governor. . . .

. . . While we did not secure this much-needed institution for our state, we did not fail. The matter is simply postponed. Those who demanded it this time will continue to do so. They will interest others, and when the legislature meets again, this matter will once more be taken up, and we trust that California will then make provision for her tuberculous poor. . . .

From medical society reports:

Marin County.—It was resolved that no member of the medical society should consult with a lodge physician. . . .

California Academy of Medicine.—The regular meeting of the California Academy of Medicine was held June 27, 1905, the president, Dr. Dudley Tait, being in the chair. . . . The Relation of Hodgkin's Disease to Lymphosarcoma.—Dr. H. W. Gibbons called attention to the great confusion that has arisen in the literature, relative to the nature of certain enlargements of the lymphatic glands. . . .

Redlands Medical Society.—The president, Doctor Sanborn, presented correspondence received from Governor Pardee, in which the governor explained his reasons for vetoing the bill providing for a state sanatorium for tuberculosis. . . .

San Francisco Society of Eye, Ear, Nose and Throat Surgeons.—The regular meeting was held on June 15, 1905, in the rooms of the San Francisco Polyclinic, the president, Doctor Pischel, in the chair. It was decided to tender a banquet to Professor Hirschberg, of Berlin, Doctor Holmes, chairman of the Section on Ophthalmology of the American Medical Association, and to the visiting specialists. . . .

San Francisco Polyclinic Gathering.—Regular meeting, May 3, 1905; the president, Dr. H. A. L. Ryfko-gel, in the chair. . . . Carcinoma of the Liver.—Dr. J. Wilson Shiels and Dr. C. G. Levison presented a case of exploratory celiotomy for carcinoma of liver.

DEPARTMENT OF PUBLIC HEALTH

SERUMS FOR POLIOMYELITIS*

During the 1927 epidemic the George Williams Hooper Foundation for Medical Research, University of California, working with the aid of an endowment fund for poliomyelitis prepared and distributed 8,000 cubic centimeters of convalescent serum. A constant supply to meet the demands in Northern California is kept on hand. However, in view of the present epidemic and since the expense entailed to collect and to distribute serum is heavy and frequently unsatisfactory it is imperative that each community depend upon its own supply of donors and serum. The following suggestions may assist the health officials in the organization of an efficient bleeding clinic and serum station.

* Other articles on poliomyelitis in this issue by Beatrice Howitt and W. M. Dickie are printed in the Special Articles section of this issue.

(1) List of donors should be kept by the health authorities, and should be periodically checked and their addresses kept up to date.

(2) Notices may be inserted in the daily papers asking all persons who had had poliomyelitis formerly and are willing to give some blood to phone the health department or the hospital in which the bleeding clinic has been established.

(3) Donors should be paid at the rate of \$5 for 50 cubic centimeters of blood or less; \$10 for 50 to 100 cubic centimeters and for larger amounts accordingly.

(4) As donors those persons should be chosen who have passed through a frank attack of the disease. Until additional evidence to the contrary is available it is advisable to consider the serum from convalescent persons who were themselves treated with convalescent serum as unsuitable. Furthermore, irrespective of the recent findings of Aycock and others that the normal adult serum may neutralize the virus no certainty exists that a normal adult, selected at random, may possess such a property.

(5) Blood may be safely drawn after all symptoms of the acute stage have subsided. Serum taken years after an attack still neutralizes the virus and consequently it is reasonable to believe that the property is permanent. Since frequently poliomyelitis donors are not of a robust type the repeated withdrawal of small amounts should be given preference over a large amount of blood at one time.

(6) The apparatus and technique of bleeding the donors are described in an article by Aycock, Luther and Kramer, *Journal American Medical Association*, 1929, Vol. 92, pp. 385-388. Special instructions may be obtained from the Hooper Foundation, Second and Parnassus Avenues, San Francisco, California.

(7) Each serum should be subjected to a Wassermann and sterility test, according to the usual standard procedures. When collected aseptically it may be put up in vials or ampoules without preservatives. If the serum is kept for any length of time the addition of a preservative such as chinisol 3.3 per cent of a 2 per cent aqueous solution or tricresol 0.2 per cent. *Preserved serum should not be used for intrathecal injections.*

(8) For the purpose of investigation of the suspected preparalytic cases and the administration of the serum the health offices should appoint one or two consultants.

(9) The available data are insufficient to determine the best method of administration or the dosage of convalescent serum required to secure the best result. Not infrequently the dosage has been regulated rather by the supply and demand than by any definite information as to its adequacy. Aycock and his associates recommend lumbar puncture and intrathecal administration of 20 cubic centimeters followed by the intravenous injection of 60 cubic centimeters of serum. *The intrathecal injections should never be repeated.* Reactions, such as an increase in the meningeal signs, chill with a sharp rise in temperature, abdominal distress, are frequently encountered. In California, Shaw, Thelander and Fleischner in 1925 and again Shaw and Thelander in 1928, reported favorably on the intramuscular injection of 50 cubic centimeters of serum in one dose for children under five years of age. If the patient is over five years, 100 the severity of the symptoms. During the Canadian epidemic, 1928 to 1929, at Manitoba, the Medical Research Committee of the University recommended exclusively the *intramuscular injection* of 25 cubic centimeters of convalescent serum as a standard amount. From the reports given the results of the treatment appear very encouraging. *During an epidemic the intramuscular route of administration is considered the simplest and safest method.*

(10) The use of *convalescent serum as a prophylactic* in the event of a severe poliomyelitis epidemic had been suggested in 1928 by Davide in Sweden and by Flexner and Stewart in the United States. Although the available evidence to support the efficacy of this procedure is inconclusive it is recommended that chil-

dren receive ten cubic centimeters and adults twenty cubic centimeters of the serum subcutaneously, the injections to be repeated after four to six weeks if the epidemic persists.

INFANTILE PARALYSIS*

1. *What Is "Polio"?*—Acute Anterior Poliomyelitis (Infantile Paralysis).

An acute systemic infectious disease which in a limited number of cases tends toward an involvement of the gray matter of the central nervous system, capable of causing widely disseminated lesions throughout the tissues of the brain and cord. The toxin produced in this disease has a special affinity for destroying the gray matter or motor tracts and seldom affects except indirectly the sensory tracts. The disease occurs spasmodically, but has strong epidemic propensities. It is of sudden onset and is a disease preëminently of childhood and young adults.

2. *What Do We Know About Its History?*—It is of comparative recent origin. First recognized for what it really was, an epidemic disease, by Michael Underwood in his "Diseases of Children," published in 1784. In 1884 an epidemic started in Stockholm, Sweden, and since that time has spread intermittently all over the world. Where it once attains a foothold there it remains, occurring spasmodically or rather mildly endemic, occasionally lighting up into epidemics, always leaving a train of death and three times as many more crippled children in its wake. The rattlesnake and deadly cobra give some warning and against them man has battled successfully; but this, a thing more deadly and unseen, remained for many years a dreaded mystery, seemingly unsolvable. Like measles and other infectious fevers, the first epidemics in a people new to its manifestations have been more virulent and deadly, with a larger number of people affected than in epidemics following. The first real epidemic came to Los Angeles in 1913, with 242 cases and 47 deaths. We had had a few cases now and then for a couple of years before. It has been with us ever since and has assumed epidemic proportions at times.

3. *Will This Be a "Polio" Year?*—"Polio" has generally manifested its epidemic propensities in the summer months. June is ordinarily considered the key month. If there is considerable of a rise in June we look for more in July, August, September and October. In the city of Los Angeles, with three cases in March, seven in April, eight in May and over fifty in June, we can look forward to cases of infantile paralysis until the warm weather is over.

4. *What Is the Cause of "Polio"?*—It has been proved that a filterable virus carrying the infection is responsible (Flexner and Lewis in 1909) and this same year three different observers working independently succeeded in transmitting the disease from one monkey to another.

5. *What Has Been Learned by Research and Experimentation?*—The early investigations showed diplococci, streptococci or micrococci in the spinal fluid. These organisms are probably secondary invaders and some of them, grown under anaërobic conditions, assume the shape of the globoid bodies described by Flexner and Noguchi. All of these can be filtered out and the filtrated fluid will still produce the disease in monkeys. The usual laboratory animals, rabbits, guinea pigs, etc., are not suitable for experimentation; of all animals only monkeys are affected with the same systemic and cerebrospinal involvement as in man. It has been definitely established that the virus gains entrance into the blood, lymphatics and central nerv-

(Continued on Page 34, Advertising Section)

* Being a paper printed by George Parrish, M. D., Health Officer of the City of Los Angeles. Paper written by George M. Stevens, M. D., Epidemiologist of the Los Angeles City Health Department. Because of the large number of cases of infantile paralysis which have come into existence in California during the last two months, it seems proper to give as much publicity to this epidemic as possible. On that account several articles on the subject of poliomyelitis are printed in this August issue of "California and Western Medicine."

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INFANTILE PARALYSIS

(Continued from Miscellany Department)

ous system by way of the nasopharynx; also that virus implanted in the nasopharynx does not invariably gain entrance into the central nervous system, and only in exceptional instances does this result. Only once in about two hundred times (according to Harold Amoss, of Johns Hopkins Medical School).

In other words, according to Amoss, two hundred people can be "Polio" carriers for every one that develops a paralysis. If this is true, a great natural resistance exists against poliomyelitis in most individuals.

Epidemiological studies of epidemics bear out the truth of this statement. While more than one case in a family does occur, it is the unusual thing, occurring in not over five per cent of the cases. In fact it has often been called the one case in a family disease. The failure of the virus to infect is inexplicable. Experiments in the Rockefeller Institute have demonstrated the following facts. These facts are important; they pave the way to at least partial control of this disease. Get this:

Experiment No. 1. "Polio" virus from the nasal

mucosa or spinal canal of the one afflicted, injected into the spinal canal of the monkey, produces "Polio."

Experiment No. 2. "Polio" virus plus the normal secretion from a healthy nose, allowed to stand for a time, and then injected into the spinal canal of a monkey, does not produce the disease—virus neutralized.

Experiment No. 3. A pledget of cotton soaked with the virus placed well back in the nose of monkeys is removed after two hours; the animals usually remain well.

Experiment No. 4. Pledget of cotton soaked with "Polio" virus placed well back in the nose of monkeys, is allowed to remain twelve hours. Experimental poliomyelitis results, showing that the permeability of the mucosa is penetrated by the virus. Long continued contact has overcome the natural resistance.

Experiment No. 5. A healthy contact to a "Polio" case is selected. Virus from a "Polio" case is mixed with his nasal secretions and allowed to stand. This is then injected into the spinal canal of a monkey. The monkey contracts the disease, demonstrating that nasal washings from carriers do not neutralize the virus.

(Continued on Page 36)

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INFANTILE PARALYSIS

(Continued from Page 34)

Experiment No. 6. A healthy individual is selected who has never been in contact with the disease and whose nasal washings have been proved by Experiment No. 2, to neutralize the virus. His nasopharynx is treated with some one of the antiseptics, saline sol., argyrol or even plain water for a few times. After treatment his nasal washings are mixed with the virus and injected into the spinal canal of a monkey and his nasal washings have lost the power to effect a neutralization of the virus.

During the period of a common cold, the washings do not neutralize.

Virus has been detected in nasal washings six to nine days before the onset of the disease. (Harold Amoss, Johns Hopkins Medical School Bulletin of The New York Academy of Medicine. Vol. II, No. 9, Sept. 1926.)

6. How Does It Spread?—Mostly from contact with carriers who have not been ill with the disease and will not be. Sometimes, but infrequently from known frank cases. The virus is spread from nose to nose much as a common cold; indirectly at times through infected articles; insects and flies, and milk have at times been found indirectly to transport it; dust from the air is probably a common way. Almost never spreads in hospital wards, nor does it affect doctors and nurses as is the case with all other infectious fevers. Bowel discharges and articles soiled therewith from patients are infectious.

7. Who Are the Victims?—The victims are young children, adolescents and occasionally an adult. The most susceptible age is under five years, but strange to say these young children often combat the disease better than those older.

8. What Is the Incubation Period?—From three to ten days; commonly six days.



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9. *What Are the Symptoms?*—Most of the cases have very slight general symptoms and frequently escape notice. In about five per cent of the cases paralysis strikes out of the blue; in the other 95 per cent fever always occurs and is the most constantly found symptom. It may be low or high, generally low. Headache is the next most common symptom and is found in practically all cases where patient is old enough to describe the sensation. Constipation is the rule, but diarrhoea has occurred in some epidemics. Pain, tenderness and muscle soreness are nearly always present. Stiff neck occurs in 40 per cent of the cases. In many instances the patient looks very much sicker than the temperature and pulse would indicate. Sweating is very common. A valuable sign is the fading of color in the eyes and oftentimes a glassy appearance. (Ask the mother about this.) Extreme irritability is common in some; stupor in others. Tremors and twitching of the muscles somewhere is often observed. Convulsions occur in babies. Delirium occurs at times, but is generally of short duration. Reflexes are disturbed or absent when the poison reaches or has reached the central nervous system. If this has occurred, then disturbances of taste, speech, deglutition, breathing and all kinds of muscle paralysis may be observed according to what particular spot the gray matter in the cord or bulb becomes disorganized. Not all of these symptoms enumerated appear in any one case. Diagnosis on the start is difficult.

10. *What Are the Different Types?*—Classified as to symptoms:

1. The abortive type,
2. The one-hump type,
3. The dromedary type,
4. The out-of-the-blue type.

The most useful classification for clinical use as met with in practice is as follows:

1. The spinal poliomyelitic form,

(Continued on Page 39)

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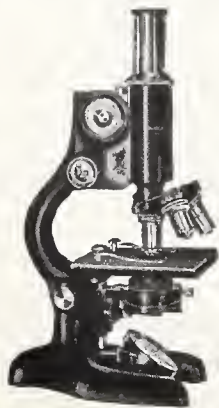
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INFANTILE PARALYSIS

(Continued from Page 37)

2. The meningitic,
3. The encephalitic,
4. The form resembling Landry's paralysis,
5. The abortive,
6. The bulbar or pontine form,
7. The ataxic,
8. The polyneuritic (resembling neuritis).

11. *How Is a Positive Diagnosis Made?*—This may be easy or difficult.

Easy, where motor paralysis is present and the history, symptoms and signs check up with the findings. Here the diagnosis is made too late to abort the disease.

Difficult and oftentimes impossible in the abortive and preparalytic state of the paralytic type unless blood and spinal fluid tests are made. If these tests are made by competent men they are reliable and run true. Every beginning "Polio" or case strongly suspected of being "Polio" should be a hospital case. Early diagnosis and early treatment with convalescent blood will save lives and prevent much crippling.

The leucocytes (white blood corpuscles) in blood are increased in the early stages. (Normal, 7,500; anything above that is leucocytosis.) This occurs also in other diseases but not with those easily confused with "Polio," and besides there is apt to be an increase in the proportional number of mononuclear cells.

If the toxin has reached the spinal fluid, the spinal fluid is clear under pressure and the cell count increased above the normal, generally with a preponderance of polymorphonuclear cells in the early days, later a preponderance of lymphocytes.

The colloidal benzoin test has been used in the General Hospital for several years and is extremely useful and correct in recognizing those doubtful cases of poliomyelitis with no paralysis and rather close

(Continued on Next Page)

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INFANTILE PARALYSIS

Continued from Preceding Page)

to the normal cell count line. It is nearly 100 per cent positive in the first three weeks of "Polio," in tubes 6, 7, 8, 9. It is also very useful in making a distinction between encephalitis and T. B. meningitis.

12. *Can a Preparalytic Diagnosis be Made?*—Yes. By the methods just enumerated and it is being more frequently done than formerly.

13. *What Are the Methods of Prevention?*

1. Recognition of the disease.
2. Isolation and quarantine of cases.
3. Bedside concurrent disinfection with medical aseptic technic and exclusion of other members of family from sick room.
4. Education of physicians and the public as to the real facts, with daily information as to the number of cases, prophylactic methods, etc.
5. Prophylactic methods:
 - (a) Keep away from sick people.
 - (b) Avoid crowds. (This applies to grown-ups as well as children, as we may all become carriers.)
 - (c) Protect yourselves as far as possible against colds. Do not get overheated. Do not get fatigued or chilled.
 - (d) Get plenty of sleep—make the children take a nap.
 - (e) Exercise in moderation.
 - (f) Plenty of fresh air and sunshine in the house with screens.
 - (g) Eat in moderation.
 - (h) Do not worry.
 - (i) As far as possible, avoid dust and dirt; keep down the dust about your house by the use of a hose.
 - (j) Wash the hands before eating.
 - (k) Keep the house clean.

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- (l) Keep yourself clean and the children clean; do not let them wallow in the dirt.
(m) Most people are better off at home than to try to run away from trouble.

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- (n) Do not do anything that will neutralize the natural protection afforded by the normal mucus in your nose and throat. Do not use any antiseptic solutions in the nose or throat as a prophylactic. Even plain water is harmful.
(o) Keep out of swimming pools. They are not harmful per se—water in the nose or throat by washing out the natural secretions neutralizes your protection. Diving is particularly harmful.

14. *Can We Forecast From Facts and Figures the Future of the Present Flare-up?*—We surely can to a certain extent.

The population of Los Angeles in 1912, when we had our most severe epidemic, was 430,000. At that time we had for the year, 242 cases and 47 deaths (approximately one case for every 1,776 people). The next most severe epidemic was for the year ending 1927, with 146 cases and 37 deaths (one case to every 6,438 people) and our population at this time was well up to 1,000,000.

With three times the population now that we had in 1912, we might expect if other conditions are the same to have three times as many cases for the year, or 726 cases, with 141 deaths. This amount hardly seems possible when we remember that the first real epidemic of "Polio" in any community is always the most virulent.

With 279,000 school children which we now have, add another 71,000 for good measure, to include the universities and other young adults, we have approximately 350,000 susceptibles; divide this by 200, the figures quoted by Harold Amoss as the susceptibility

(Continued on Page 44)

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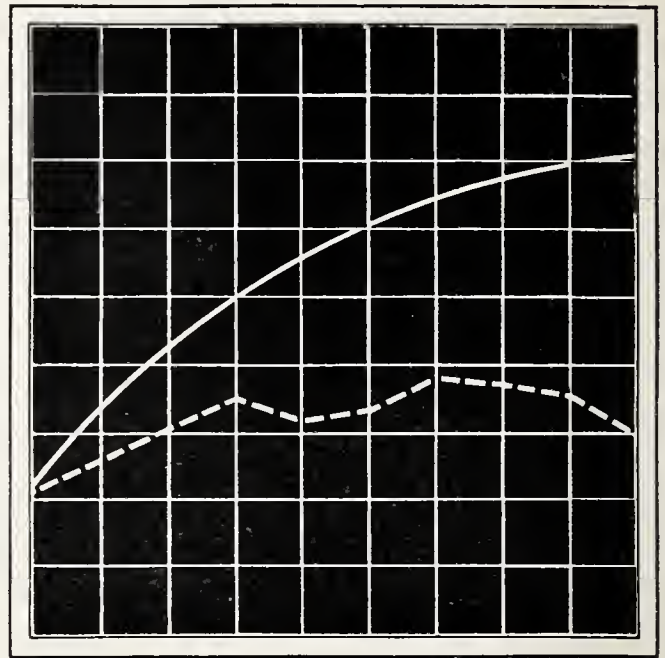


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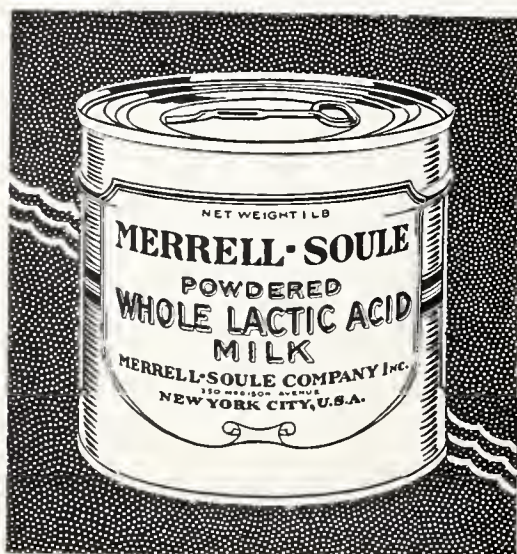
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INFANTILE PARALYSIS

(Continued from Page 41)

rate, and we get the figure 1,750, which is the worst that could happen to us without control by known preventive measures and if all the susceptibles came down with the disease.

15. *Does a Specific Form of Treatment Exist?*—Yes! The immune blood of a person who has recovered from the disease if given before paralysis sets in is specific. It also will produce a relative immunity lasting for six weeks or longer if given before the symptoms occur.

16. *What Is the Very Latest on Treatment?*—Cisternal puncture has to a certain extent supplanted lumbar puncture. Often both are used. It is better in that serum can be introduced where it will do the most good quickly and where gravity is brought to our assistance. It is just as safe.

17. *Is Quarantine Efficient?*—In the light of present knowledge we cannot believe otherwise, but the major problem is that of the healthy carrier.

18. *What Is the Nursing Technic?*—As far as prophylaxis goes, isolation from others in a well ventilated, screened room, concurrent bedside disinfection and medical aseptic technic.

19. *What Are the Lines of Defense?*—As enumerated in 13 on "Prevention," emphasis is again placed on the avoidance of contact with those ill with the disease and with carriers. As nearly anyone may be a carrier, this means to avoid carefully the lessening of local or body resistance.

20. *Will "Polio" Ever Be Conquered?*—A specific method similar to the Schick test will sooner or later be discovered; more than likely a method of immunization against the disease will follow. A remedy to augment or take the place of immune blood will be found.

21. *What Should the Householder Do When He Suspects a Case in His Family?*—Call a reliable doctor at once. If you have none or cannot afford one, call the Health Department.

After you get a doctor, do as he tells you.

Do not oppose sending the case to the hospital and do not oppose cisternal puncture with immune blood treatment.

Do not oppose quarantine. Protect others in your family at this time by isolating as far as possible the first sick one. Do not let a well child be in the same room or sleep in the same bed with the sick one and above all, act quick.

Doctors and Their Critics.—The ability to be critical is certainly possessed by all of us, but the art of being critical (and certainly justifiable and intelligent criticism is an art) is possessed by very few of us, although there are many who feel that they are endowed with this gift and who seize every opportunity of expressing their more or less personal opinions, in many cases with little foundation to support them. Criticism is to be expected in all walks of life and will occur whether it is expected or not. It might be said that it is of two distinct types, constructive and destructive. The former is welcome and desirable whereas the latter is best avoided and when it is used one might safely assume that it is a mask for some ulterior motive.

The medical profession expects and welcomes suggestions, and should these suggestions be in form of constructive criticism, it should and would profit by them. Any expressions of this sort, however, should be offered by a person or group of unbiased opinion who are qualified to make such statements and who are able to substantiate these statements with conclusive proof and not with dogmatic opinions.

In a recent issue of *Liberty*, a current weekly sponsored by the *Chicago Tribune*, there was a rather

(Continued on Page 46)

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(Continued from Page 44)

unique and worthless article of a critically destructive nature entitled "Doctors and Their Ethics." It was clearly a statement of opinion and not of fact, and although there were several quotations which were unquestionably typographically correct, the motive in the background, which was being forcibly dwelt on, was entirely unsubstantiated. After perusing this rather voluminous article, it was difficult to see where there were any logical conclusions, but it was easy to see how the average gullible reader would believe that he had all of the inside information on the procedures of the medical profession.

Shall the medical profession accept the article, "Doctors and Their Ethics," as a true expression of the sentiments of the public? I hardly think so and feel more like considering it as an individual spontaneous eruption of more or less vague ideas and misconceptions, of a propagandal nature, brought on by no definite cause.

For the benefit of Grace Robinson, writer of "Doctors and Their Ethics," I have made a revision of the Oath of Hippocrates, not for the purpose of ridiculing or defiling the oath, but solely for the purpose of putting it in that form in which, judging from her statements, it would be more acceptable to her. Emphasizing once more the satirical nature of the revised oath, and hoping it will be only accepted as such, I offer:

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(Continued on Page 49)

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"Only those clinical laboratories in which the space, equipment, finances, management, personnel and records are such as will insure honest, efficient and accurate work may expect to be listed as approved."

"The housing and equipment should be sufficient to permit all essential technical procedures to be properly carried out."

THE DIRECTOR

"The director of an approved clinical laboratory should be a graduate of an acceptable college or university of recognized standing, indicating proper educational attainments. He shall have specialized in clinical pathology, bacteriology, pathology, chemistry or other allied subjects, for at least three years. He must be a man of good standing in his profession."

"The director shall be on full time, or have definite hours of attendance, devoting the major part of his time to the supervision of the laboratory work."

"The director may make diagnoses only when he is a licensed graduate of medicine, has specialized in clinical pathology for at least three years, is reasonably familiar with the manifestation of disease in the patient, and knows laboratory work sufficiently well to direct and supervise reports."

"The director may have assistants, responsible to him. All their reports, bacteriologic, hematologic, biochemical, serologic and pathologic should be made to the director."

RECORDS

"Indexed records of all examinations should be kept. Every specimen submitted to the laboratory should have appended pertinent clinical data."

PUBLICITY

"Publicity of an approved laboratory should be directed only to physicians either through bulletins or through recognized technical journals, and should be limited to statements of fact, as the name, address, telephone number, names and titles of the director, and other responsible personnel, fields of work covered, office hours, directions for sending specimens, etc., and should not contain misleading statements. Only the names of those rendering regular service to the laboratory should appear on letterheads or other form of publicity."

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" * * There should be no dividing of fees or rebating between the laboratory or its director and any physician, corporate body or group. * * *"*

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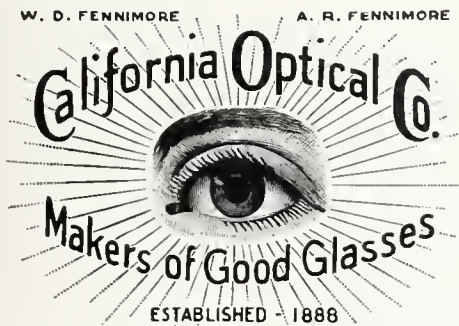
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(Continued from Page 46)

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"Jargon's Dearest Child."—Cardinal Newman once wrote that: "Thought and speech are inseparable from each other. Matter and expression are parts of one; style is a thinking out into language." Sir Arthur Quiller-Couch, King Edward VII's professor of English literature in the University of Cambridge, in

(Continued on Page 51)

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(Continued from Page 49)

one of his lectures on the art of writing, said: "You cannot use the briefest, the humblest process of thought, cannot so much as resolve to take your bath hot or cold, or decide what to order for breakfast, without forecasting it to yourself in some form of words. Words are in fine the only currency in which we can exchange thought even with ourselves. Does it not follow, then, that the more accurately we use words the closer definition we shall give to our thoughts? Does it not follow that by drilling ourselves to write perspicuously we train our minds to clarify their thought?" Newman did not intend that his words should apply only to his brethren in Holy Orders, nor Quiller Couch that his should reach no other ears than those of students of the literae humaniores. Clarity of thought is not the perquisite of any one body of men. Unfortunately, so-called scientific men, and medical practitioners among their

number, often lapse into the use of slang, of slipshod terms and of jargon which are perhaps convenient for the moment, but which are with difficulty prevented from becoming permanent. It would probably be doing both Newman and Quiller-Couch an injustice to presume that slang terms were unknown to them or that ill-chosen words never passed their lips. Reference to their writings, however, will show that when they put pen to paper, they gave only their best, they reflected the order of their minds and they did not by suggestion impugn that of their readers.

The art of medical writing has received attention at the hands of such authors as Clifford Allbutt and Dr. Maurice Fishbein. Their books should be read by all inexperienced medical writers and even the experienced will learn something from them. Dr. F. Guy Griffiths also has rendered signal service to the medical profession of Australia by his recent ar-

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ticles. It is not intended to draw attention so much to the art of medical writing generally as to the misuse of one word, "case," described aptly by Quiller-Couch as "Jargon's dearest child." By many medical writers, or would-be medical writers, "case" is used indiscriminately to denote the patient,

the condition from which he is suffering, and an example of the condition: "The case is admitted," "the case is examined," "the case is operated on," "the case dies," "the patient's case is hopeless," "this man is in similar case," "the treatment of all cases" and so forth. As will be seen shortly, the only per-

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missible use of the word case is in designation of an instance or example: "A similar case of cancer," "in reporting a case of cancer." "The Concise Oxford Dictionary" defines case as "instance of thing's occurring," "actual state of affairs," "position, or circumstances in which one is, plight." As medical definition it gives "person's diseased condition," "instance of disease." It may be questioned whether it is correct to use "case" in referring to the "person's diseased condition" in view of the fact that neither Gould's nor Dorland's medical dictionary attributes this meaning to the word. The former gives the meaning "a single instance or example of disease" and the latter "a particular instance of disease." Even if it be granted that "case" may be used for "condition," it is never right to use "case" when "patient" is meant.—*The Medical Journal of Australia*, April 26, 1930.

A Medical Student Loan Fund Created.—Constructive legislation by the House of Delegates at the recent annual session created a medical student loan fund. Every member of the Nebraska State Medical Association will be interested in this new by-law and in the possibilities it promises for good in future years. While the fund starts with a paltry five hundred dollars, it is to become a revolving fund and in ten years will be quite worth while. The text of the by-law follows:

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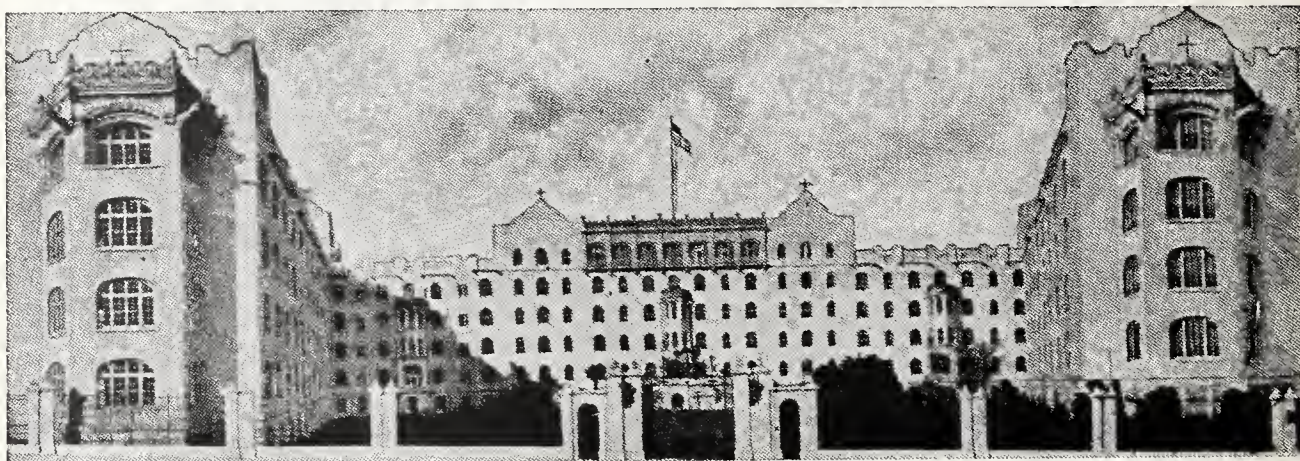
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(Continued from Preceding Page)

if current finances justify such appropriation, the sum of five hundred dollars, to be known as a Medical Student Loan Fund, which sum may be used by the committee to assist worthy, needy medical students of above average scholarship, residents of Nebraska, members of the Junior or Senior classes of the University of Nebraska College of Medicine or of the Creighton University College of Medicine, or Internes from these colleges; the money so used to be allocated equally as nearly as may be possible to students of the Nebraska University College of Medicine and the Creighton University College of Medicine. This money is to be loaned to the students at the option of the committee and shall draw interest at the rate of six per cent until the principal and interest are paid. When such money is paid back to the Fund it shall become a part thereof to be again used for assisting needy students as in the first instance. The committee shall make a report of its activities at the end of each fiscal year.

The committee elected to administer this fund consists of Drs. F. A. Long, H. J. Lehnhoff and A. P. Overgaard.—*The Nebraska State Medical Journal*, July, 1930.

Medico-Legal Problems.—Under the present law of California, where the court, immediately upon the entering of a plea of "not guilty by reason of insanity," appoints a committee of experts to investigate and inquire into the merits of the defense of insanity and to render a report to the court of their findings, it has been the experience that the experts appointed substantially agree in their conclusions and, where differences of opinion exist, they are reasonable differences of opinion, due to the manner in which the symptoms, history and other factors were viewed. While the present law has been in operation only since August 1929, it has been invoked with sufficient frequency to justify the belief that it will operate as well in the future as it has in the past and its success and practicability are chiefly due to the following factors: First, the experts are not selected by, or in any sense bound to or compensated by, either the prosecution or the defense. Second, the court, in making its appointments, is entirely free from any partisan desires in the selection of the experts, but selects its commission from among those members of the medical profession whom it deems well qualified. Third, and perhaps most important, the

(Continued on Page 56)

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(Continued from Page 54)

experts are each given a full and equal opportunity of learning all about the case unhampered by the interference of counsel. Of especial importance to the medical profession is the fact that, since the experts are appointed by the court and hence are non-partisan, their testimony is more nearly accorded the weight to which it is entitled, for the jurors look upon the experts appointed by the courts as somewhat in the nature of officers of the court and, as such, entirely free from any partisanship or interest in the ultimate outcome of the case. Under this new order of things, also, the attitude of the attorneys has undergone a distinct change. Cross-examination has become more of an inquiry to elicit information in addition to that which was brought out on direct examination, rather than, as was the former usual practice, an attack directed against the witness.

A method of procedure which works so well in cases involving questions of psychiatry is certainly worth trying in all cases involving expert testimony.—CHARLES W. FRICKE, J. D., LL. M., Judge of the Superior Court of Los Angeles County, California.—*American Journal of Surgery*, June, 1930.

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So the cradle's but a relic of the former foolish days,
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When they jounced them and they bounced them,
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The Washingtons and Jeffersons and Adamses, you know.

They warn us that the baby will possess a muddled brain

If we dandle him or rock him—we must carefully refrain;

He must lie in one position, never swayed and never swung,

Or his chance to grow to greatness will be blasted while he's young.

Ah! to think how they were ruined by their mothers long ago—

The Franklins and the Putnams and the Hamiltons, you know.

Then we must feed the baby by the schedule that is made,

And the food that he is given must be measured out or weighed.

He may bellow to inform us that he isn't satisfied, But he couldn't grow to greatness if his wants were all supplied.

Think how foolish nursing stunted those poor weaklings, long ago—

The Shakespeares and the Luthers and the Bonapartes, you know.

We are given a great mission, we are here today, on earth

To bring forth a race of giants, and to guard them from their birth.

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CONTENTS AND SUBJECT INDEX

SPECIAL ARTICLES:

Hypochloremia. By George M. Curtis,
Chicago, Illinois 625

Aspiration in Tonsillectomy—Comparative Merits of Posture and Other Factors. By H. J. Hara, Los Angeles.....628

Resuscitation of the New-Born. By Karl L. Schaupp, San Francisco.....638

Extract of Adrenal Cortex Substance. By Walter B. Coffey and John D. Humber, San Francisco.....640

Discussion by Harold Brunn, San Francisco; J. W. Cox, New York City; Karl F. Meyer, San Francisco; James Percy, Los Angeles.

Basic Principles Involved in Modern Controllable Spinal Anesthesia. By Franklin I. Harris and Edward Bolze, San Francisco 652

Amebic Abscess of the Liver—Its Treatment. By E. D. Kilbourne, Santa Ana 658

Discussion by H. H. Searls, San Francisco; Clarence G. Toland and William P. Kroeger, Los Angeles; Alfred C. Reed, San Francisco.

Carotinemia. By Hiram E. Miller, San Francisco 662

Discussion by George F. Koetter, Los Angeles; C. Ray Lounsbury, San Diego.

Destructive "Calculus Disease." By Franklin Farman, Los Angeles.....663

Discussion by Henry A. R. Kreutzmann, San Francisco; W. B. Dakin, Los Angeles; William E. Stevens, San Francisco.

Traumatic Shock—Its Newer Aspects and Treatment. By George K. Rhodes and Carol McKenney, San Francisco..665

Discussion by Ernest H. Falconer, San Francisco; Burns Chaffee, Long Beach; Charles T. Sturgeon, Los Angeles.

The Psychoneurotic Patient and the Clinician. By William H. Barrow, San Diego 670

Discussion by Arthur L. Bloomfield; San Francisco; V. R. Mason, Los Angeles; C. M. Haviland, San Diego.

Sixteenth Century German Medicine—The Lure of Medical History. (Part III.) By S. L. Millard Rosenberg, Los Angeles 673

CLINICAL NOTES AND CASE REPORTS:

The Problem of the Skin Graft. By H. L. Updegraff, Hollywood.....679

Improvised Darkfield Apparatus. By S. E. Light, San Francisco.....681

BEDSIDE MEDICINE:

Acute Poliomyelitis.....682

Discussion by George M. Stevens, Los Angeles; George E. Ebright, San Francisco; Mark L. Emerson, Oakland.

EDITORIALS:

A State Election Year—New Reapportionment in the California Legislature 684

Woman's Auxiliary of the California Medical Association 686

MEDICINE TODAY:

Toxic Reactions Produced by the Application of Trinitrophenol (Picric Acid). By M. Scholtz, Los Angeles 688

Prevention of Contractures in Poliomyelitis. By A. Gottlieb, Los Angeles.....688

Importance of Mental Facts in Medicine. By Robert L. Richards, San Francisco.....689

STATE MEDICAL ASSOCIATIONS:

California Medical Association 690

Utah State Medical Association.....691

MISCELLANY:

News 692

Correspondence 693

Public Policy and Legislation.....694

Much in Little.....694

Twenty-Five Years Ago.....695

California Board of Medical Examiners..696

Directory of Officers, Sections, County Units, and Woman's Auxiliary of the California Medical Association Adv. page 2

Book Reviews.....Adv. page 11

Truth About Medicines.....Adv. page 17

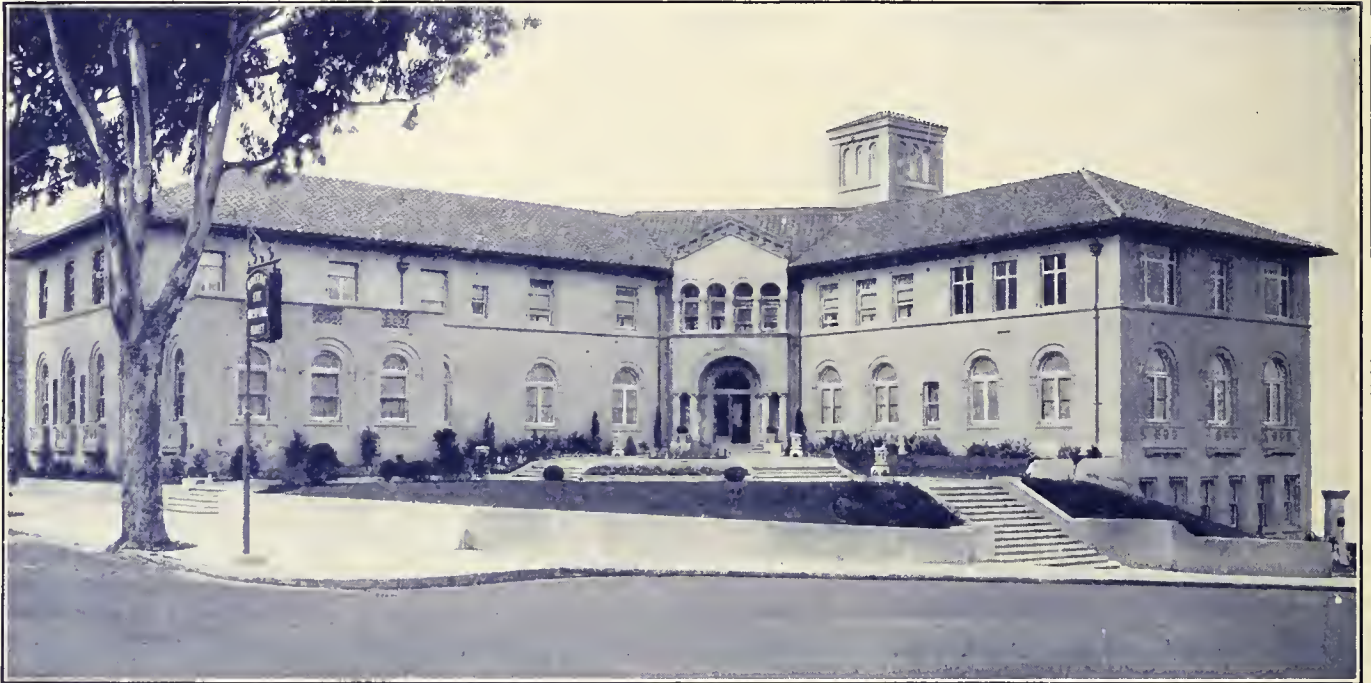
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.....Adv. page 8

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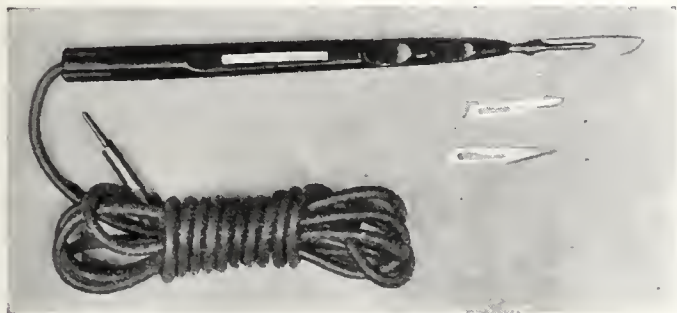
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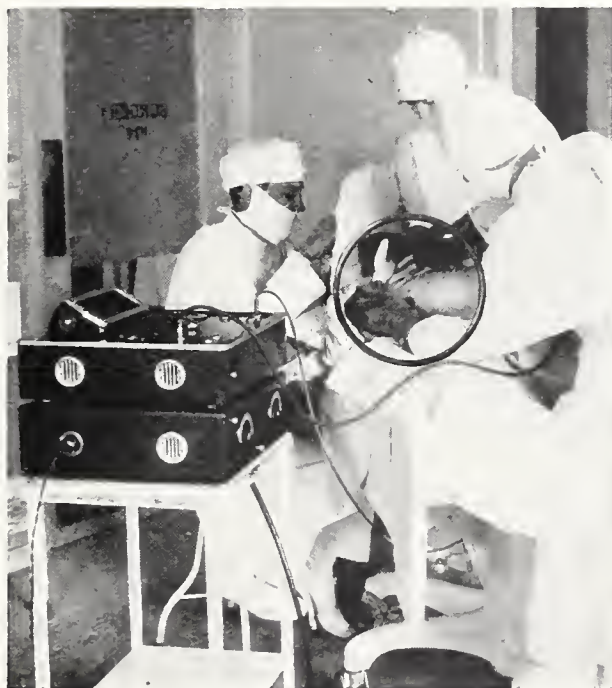
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**Based upon an article by Dr. John Howell West, in "Archives of Pediatrics," October, 1929.*



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ALPHABETICAL LIST OF ADVERTISERS

Members of the California Medical Association can aid their Journal and the firms who advertise therein, by coöperation as indicated in the footnote on this page.

	Page		Page		Page
Alexander Sanitarium.....	17	Graduate School of Medicine, Tulane University of La.....	24	Officers of the California Medical Association.....	2-4
Aloe Co., A. S.....	49	Greens' Eye Hospital.....	2 Cover	Officers of Miscellaneous Medical Associations.....	6
Alum Rock Sanitorium.....	19	Guardian Life Insurance Co.....	22	Park Sanitarium.....	24
American Surgical Sales Co., Ltd., The.....	33	Gunn, Herbert, Stool Examination Laboratory.....	24	Parke, Davis & Co.....	7
Approved Clinical Laboratories.....	56	Guth, C. Rodolph, Clinical Laboratory.....	10	Petrolagar Laboratories, Inc.....	39
Arlington Chemical Co., The.....	16	Hill-Young School of Corrective Speech.....	24	Podesta and Baldocchi.....	42
Banning Sanatorium.....	52	Hittenberger Co., C. H.....	10	Post Graduate School of Surgical Technique, Inc.....	59
Bard-Parker Co., Inc.....	41	Hoffman-La Roche, Inc.....	13	Pottenger Sanatorium.....	61
Barry Co., The James H.....	58	Holland-Rantos Co., Inc.....	24	Purity Spring Water Co.....	15
Bausch & Lomb Optical Co.....	42	Hospitals and Sanatoriums.....	6	Rainier Brewing Co.....	44
Benjamin & Rackerby.....	54	Hynson, Westcott & Dunning, Inc.....	44	Riggs Optical Company.....	31
Benjamin, M. J.....	45	Jacobs, Louis Clive.....	28	Saint Francis Hospital.....	14
Bittleston Collection Agency, Inc.....	62	Johnston-Wickett Clinic.....	54	Santa Barga Clinic, The.....	60
Broemmel's Prescription Pharmacies.....	3	Joslin's Sanatorium.....	40	Scherer Co., R. L.....	29
Brown Press.....	47	Kelley-Koett Mfg. Co., Inc., The.....	15	Scripps Metabolic Clinic and Memorial Hospital.....	18
Bush Electric Corporation.....	1	Knox Gelatine Laboratories.....	25	Sharp & Dohme.....	34
California Lima Bean Growers' Association.....	45	Laboratory Products Co.....	3 Cover	Shasta Water Co., The.....	22
California Optical Co.....	57	Las Encinas Sanitarium.....	12	Shumate's Prescription Pharmacies.....	24
California Sanatorium.....	36	Lederle Laboratories, Inc.....	23	Soiland, Albert (Radiological Clinic).....	31
Calso Water Co.....	49	Lilly & Company, Eli.....	32	Southern Sierras Sanatorium.....	38
Camp & Co., S. H.....	20	Lister Bros., Inc.....	11	Squibb & Sons, E. R.....	26
Canyon Sanatorium.....	18	Livermore Sanitarium.....	27	Stacey, J. W., Medical Books.....	11
Certified Laboratory Products.....	46	Maltbie Chemical Co., The.....	28	St. Joseph's Hospital.....	60
Certified Milk.....	53	Maltine Company, The.....	5	St. Luke's Hospital.....	23
Charles B. Towns Hospital.....	47	Mead Johnson & Co.....	21	St. Mary's Hospital.....	62
Children's Hospital.....	59	Medico-Dental Finance Corp.....	48	Storm Binder and Abdominal Supporter.....	48
Clark-Gandion Co., Inc.....	14	Mellins Food Co.....	30	Sugar Institute.....	37
Classified Advertisements	10	Merck & Co., Inc.....	64	Sugarman Clinical Laboratory.....	28
Colfax School for the Tuberculous.....	63	Merrell-Soule Co., Inc.....	50	Sutter Hospital, Sacramento.....	14
Compton Sanitarium and Las Campanas Hospital.....	9	Milk Commission of the Los Angeles County Medical Ass'n.....	53	Towns Hospital, Charles B.....	47
Cutter Laboratory.....	4 Cover	Monrovia Clinic.....	51	Trainer-Parsons Optical Co.....	35
Dairy Delivery Co.....	35	National Ice and Cold Storage Company.....	27	Twin Pines.....	42
Dante Sanatorium.....	4 Cover	New York Polyclinic Medical School and Hospital.....	9	Union Square Building.....	11
Dewar & Hare Electric Co.....	33	New York Post Graduate Medical School and Hospital.....	47	United States Fidelity & Guaranty Company.....	57
Doctors' Business Bureau.....	19	Nichols Nasal Syphon.....	42	Vitalait Laboratory.....	12
Dry Milk Co., The.....	55	Nonspi Company.....	40	Wallace, Sidney J.....	61
Four Fifty Sutter.....	36	Oaks Sanitarium.....	9	Walters Surgical Company.....	59
Franklin Hospital.....	51			Wedekind Co., Frank F.....	47
Furscott, Hazel E.....	24				
Golden State Milk Products Co.....	30				
Grace Deere Velie Metabolic Clinic, The.....	43				

CALIFORNIA AND WESTERN MEDICINE, the Journal of our Association, in its present form, is made possible in part because of the generous coöperation of firms who believe that its pages can successfully carry a message concerning their products to a desirable group of present and future patrons.

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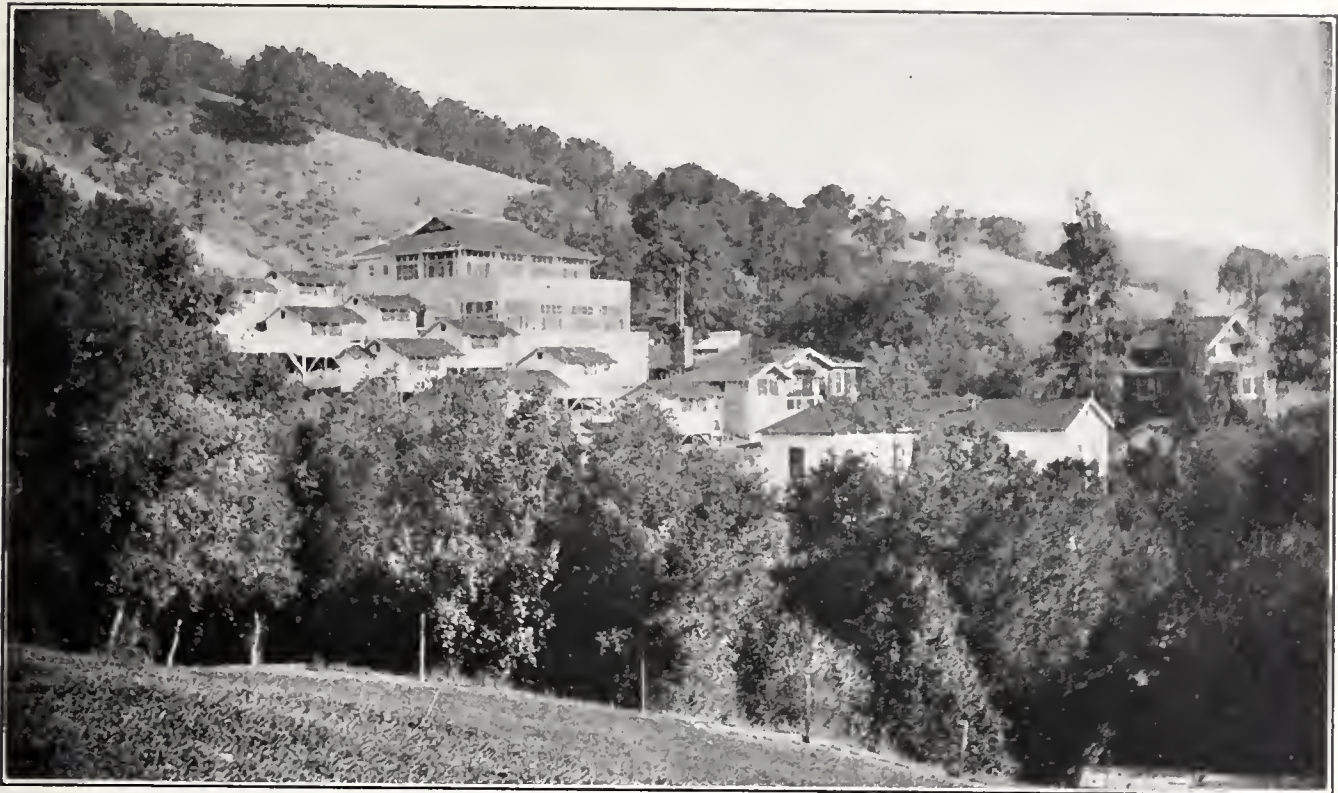
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BOOK REVIEWS

List of Books Received

BOOKS RECEIVED

Tropical Medicine in the United States. By Alfred C. Reed, M. D., Professor of Tropical Medicine, the Pacific Institute of Tropical Medicine within the George Williams Hooper Foundation for Medical Research of the University of California. Cloth. Pp. 410, with sixty illustrations. Price, \$6. Philadelphia: J. B. Lippincott Company, 1930.

Clinical Nutrition and Feeding in Infancy and Childhood. By I. Newton Kugelmass, M. D., Ph. D., Sc. D., associate attending pediatrician, Fifty Avenue Hospital; Riverside Hospital. Cloth. Pp. 345, with thirty-seven illustrations. Price, \$6. Philadelphia: J. B. Lippincott Company, 1930.

Burns, Types, Pathology and Management. By George T. Pack, B. S., M. D., Fellow of the Memorial Hospital, New York City, and R. Hobson Davis, B. S., M. D., Instructor in Pathology, University of Alabama. Cloth. Pp. 364, with sixty illustrations. Price, \$6. Philadelphia: J. B. Lippincott Company, 1930.

Doctor and Patient. Papers on the Relationship of the Physician to Men and Institutions. By Francis Weld Peabody, M. D., Professor of Medicine, Harvard Medical School. Cloth. Pp. 95. Price, \$1.50. New York: The Macmillan Company, 1930.

United States Naval Medical Bulletin. Published quarterly for the information of the Medical Department of the Navy. Issued by the Bureau of Medicine and Surgery, Navy Department, Division of Planning and Publication, Captain W. Chambers, Medical Corps, U. S. Navy, in charge. Edited by Lieutenant Commander Robert P. Parsons, Medical Corps, U. S. Navy. Compiled and published under the authority of Naval Appropriation. Act for 1930, approved March 2, 1929. Paper. Pp. 709. Washington: United States Government Printing Office, 1930.

A Textbook of Massage for Nurses and Beginners. By Maude Rawlins, Instructor of Massage to Nurses at St. John's Hospital, Brooklyn. Cloth. Pp. 144, illustrated. Price, \$2. St. Louis: The C. V. Mosby Company, 1930.

Dietetics and Nutrition. By Maude A. Perry, B. S., Formerly Director of Dietetics at the Michael Reese Hospital, Chicago, and at the Montreal General Hospital, Montreal, Canada. Cloth. Pp. 332. Price, \$2.50. St. Louis: The C. V. Mosby Company, 1930.

Personal and Community Health. By Clair Elsmere Turner, M. A., Dr. P. H., Professor of Biology and Public Health in the Massachusetts Institute of Technology. Third edition. Cloth. Pp. 443, illustrated. Price, \$2.75. St. Louis: The C. V. Mosby Company, 1930.

Gonococcal Infection in the Male. By Abr. L. Wolbarst, M. D., Urologist and Director of Urologic Clinics, Beth Israel Hospital; Consulting Urologist, Central Islip State Hospital. Second edition, completely revised and enlarged. Cloth. Pp. 297, with 140 illustrations, including seven color plates. Price, \$5.50. St. Louis: The C. V. Mosby Company, 1930.

The Long Trek. Around the World with Camera and Rifle. By Richard L. Sutton, M. D., Sc. D., LL. D., F. R. S. (Edin.), Fellow of the Royal Geographical Society; member of the French Geographical Society; Professor of Dermatology, University of Kansas, and by Richard L. Sutton, Jr., A. M., B. Sc., M. D., Fellow of the Royal Geographical Society. Cloth. Pp. 347, with more than 200 illustrations, from photographs made by the author. Price, \$5. St. Louis: The C. V. Mosby Company, 1930.

Doctors and Specialists. A Medical Revue with a Prologue and a Good Many Scenes. By Morris Fishbein, M. D., Editor of the Journal of the American Medical Association and of Hygeia, the health magazine. Cloth. Pp. 118, with illustrations by Dan Layman. Price \$1. Indianapolis: The Bobbs-Merrill Company, 1930.

Eighteenth Annual Report of the Medical Department of the United Fruit Company. Paper. Pp. 451, with illustrations. Baltimore: Waverly Press, 1930.

Supplemental Annual Report of the Board of Supervisors, County of Los Angeles. Public Health and Welfare Activities. Fiscal year ending June 30, 1929. Paper. Pp. 164, illustrated.



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BOOK REVIEWS

The Treatment of Fractures. By Lorenz Bohler. Translated by M. E. Steinberg. Pp. 185. Illustrated. Vienna: Wilhelm Maudrich. 1929.

This book is the concrete practical expression of the mechanical and mathematical foundation upon which the Germans since Zuppinger have built their medical practice in the treatment of fractures. It is an entirely "one man" book; expressing the author's wide experience, under varying conditions as head of the Vienna Emergency Fracture Service, as a war surgeon and as a country doctor. His versatility and the multitude of ways he uses to meet varying exigencies, the directness and simplicity with which he uses now closed, now open methods, now semiopen ones of pins and other means of skeletal traction are especially noteworthy.

The system of treatment as a whole merits the closest attention and study, not only from men dealing with large numbers of fractures, but especially from men practicing with limited facilities in the country in smaller hospitals.

The book will especially interest the constantly increasing audiences that Bohler gathers about him in his Viennese courses.

The English-speaking doctors owe the translator, Dr. Steinberg of Oregon, a debt of gratitude for making the book accessible. In subsequent editions, however, a number of mistakes which make the translation scarcely intelligible to readers ignorant of German might well be revised. Thus "pappe" is not pap, but pasteboard, etc. L. E.

The Treatment of Skin Diseases in Detail. (Principles and Practice of Dermatology, Volume III.) By Noxon Toomey. Pp. 512. St. Louis: The Lister Medical Press. 1930. Price, \$7.50.

The "Treatment of Skin Diseases in Detail," written by Noxon Toomey, M.D., is a publication that might be of great value to the general practitioner. It definitely shows the effort the author has made to give both his own experience and the methods followed by others in the therapeutics of skin diseases. Almost no physician could read the book without deriving some benefit. I am inclined to believe that the specialist would gain the greatest benefit of all.

One might offer a criticism on the publication because of the type of paper used. A book worth keeping would seem to be worth the use of a better grade of paper. G. D. C.

Gynecology for Nurses. By George Gellhorn. Pp. 275. Illustrated. Philadelphia and London: W. B. Saunders Company. 1930. Price, \$2.

Doctor Gellhorn's long experience as a teacher of nurses is clearly demonstrated in this excellent little textbook. It should meet with the hearty approval of the student and graduate nurse both as a text and a reference book.

The subject-matter is arranged in an orderly, concise manner, and discussed well within the limits of the average nurse's professional preparation. All the technical terms are plainly defined and explained.

The concise description of the anatomy and physiology of the female genital organs is excellent. The book is illustrated by one hundred and forty-five plain drawings and photographs.

The author places great emphasis on nursing care. The entire second half of his text is devoted to the practical details of gynecological nursing—how the nurse can best assist the physician, her duties in the care of patients and a very clear description of special procedures and technique.

It is a valuable addition to our rather limited number of special works on gynecological nursing. C. L. C.

Ultra-Violet Rays in the Treatment and Cure of Disease. By Percy Hall. Fourth edition. Pp. 248. Illustrated. St. Louis: The C. V. Mosby Company. 1930. Price, \$4.50.

In comparing the fourth edition with the third edition published in 1928, it is noted that additions of noteworthy importance have been added to the text and enhance the value of the book. The chapter on apparatus has been brought up to date and the explanation as to care, limitations and use is reasonable and understandable. Actinotherapy in combination with other therapeutic methods is another chapter presenting the importance of the infra-red ray or diathermy in conjunction with the ultra-violet rays in treatment of endocrine disturbances, deficiency, and metabolic diseases. The assistance of actinotherapy—which the author contends—as adjunct to medical treatment in pulmonary tuberculosis, chronic bronchial catarrh, and also diabetes mellitus appears reasonable and worthy of consideration. Information on the use of ultra-violet lamps in the home and summary of dosage should be helpful knowledge to the general practitioner. H. L. L.

(Continued on Page 14)

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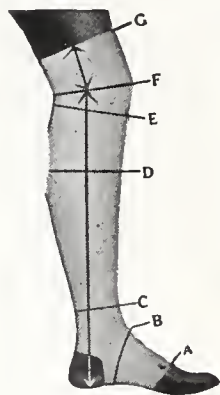
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BOOK REVIEWS

(Continued from Page 12)

The Newer Knowledge of Nutrition. The use of foods for the preservation of vitality and health. By E. V. McCollum and Nina Simmonds. Pp. 594. Illustrated. Fourth edition. New York: The Macmillan Company, 1929. Price, \$5.

This fourth edition of McCollum and Simmonds' valuable book brings up to date their compilation of the experimental work on nutrition. It is devoted chiefly to the vast amount of work done on the relationship between food deficiencies and disease. Pioneers in this work themselves, they have summarized the most important experiments and have included a bibliography of all work quoted.

The book commences with a review of the early studies on nutrition, starting with Lavoisier's work showing the relationship between the combustion of foodstuffs and oxygen and energy production. The problems of protein utilization and importance of the different amino-acids is given full discussion.

A large portion of the book is taken up with the discussion of the vitamins and the diseases caused by their deficiencies, starting with vitamin C and scurvy, vitamin D and ergosterol in its relation to rickets, vitamin E and fertility, and vitamin G and pellagra. The use and abuse of ultra-violet light is considered in a separate chapter.

Iodin deficiency in its relation to goiter is briefly discussed. Dietary considerations in the treatment of disorders of blood regeneration in the care of the teeth, and in the bodily resistance to disease are set forth.

The science of nutrition is still in an embryonic form and the results of the many experiments require critical reading for their proper evaluation. Critical summaries of the results of the tremendous amount of experimental work on the different phases of nutrition are left to the reader. The history of the development of this science is fascinating, and we are greatly indebted to the authors for the completeness of its presentation.

D. E. S.

The Baby's First Two Years. By Richard M. Smith. Pp. 159. Illustrated. Boston and New York: Houghton Mifflin Company. 1930.

This little book answers the question of the first two years very well, but it is distinctly eastern. For that reason, in many respects it is not so useful to California mothers as some other books of its type written for local climate and local conditions.

H. E. T.

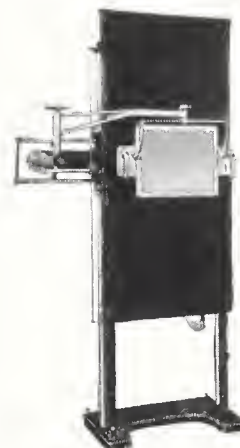


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A History of the California Academy of Medicine, 1870 to 1930. By J. Marion Read. Pp. 186. Illustrated. San Francisco: Grabhorn Press for the California Academy of Medicine.

This book is a work of love. The author has lavished immense care and trouble and affection on it.

It will have a personal appeal to many "old-timers" and be amusing to the younger generation.

Among the short biographical portraits, that of John F. Morse, Jr., stands out; others might perhaps have been endowed with more life. Henry Ferrer was an outstanding figure who older men will remember.

The sketch of Saxton Pope falls short of portraying the sportsmanship, aboriginal freshness and loveliness with which he was endowed—but then it would take a poet to do him justice.

Read's love for his work is shown further in the tasteful printing and binding.

L. E.

Recent Advances in Preventive Medicine. By J. F. C. Haslam. With a chapter on the vitamins by S. J. Cowell. Pp. 328. Philadelphia: P. Blakiston's Son & Company, Inc. 1930. Price, \$3.50.

This little volume of three hundred and twenty-eight pages with thirty illustrations is an attempt "to bring together some of the more interesting and important new contributions to the theory and practice of hygiene." Among the topics which are discussed are eugenics, maternal mortality, wastage of young life, childhood, milk, vitamins, atmospheric conditions, industrial hygiene, and immunization.

For one to whom the current medical literature of all countries is unavailable, this volume should be of great interest. It is true that somewhat more attention is paid to the work of British investigators, but the work in other countries is not neglected. Each topic is presented briefly but with sufficient detail to enable one to visualize the progress that is being made, and a fair bibliography is placed at the end of each chapter.

E. C. D.

Insomnia—How to Combat It. By Joseph Collins. Pp. 130. New York and London: D. Appleton & Company. 1930. Price, \$1.50.

A sensible book for the general reader with nothing startlingly new.

After discussing the nature of sleep, varieties of insomnia, the amount of sleep necessary, dreams, etc., the author devotes several chapters to the treatment of sleeplessness. He emphasizes the importance of determining the cause, for that due to physical disturbances

may yield to simple remedies, while the emotional types are more difficult to cure. For the latter, he ranges in suggestion from the "will to sleep" idea to the enumeration of dull books, which may prove soporifics. Some novel stunts are listed for the one who is tired of "counting sleep." Drugs are emphatically condemned, except in specific cases, and the victims are assured that neither their fears nor their dreams will drive them insane.

E. W. T.

The Essentials of Histology, Descriptive and Practical for the Use of Students. By Edward Sharpey Schafer. Twelfth edition. Pp. 628. Illustrated. Philadelphia and New York: Lea and Febiger. 1929. Price, \$5.

This textbook presents in a clear and concise manner a discussion of the fundamentals of histology. Since 1885 it has been a leading book in this particular field and requires no introduction.

The twelfth edition has been extensively revised and includes many new illustrations.

While the book is sufficiently elementary for the student, for whom it was purposely written, it will prove to be an invaluable reference for the advanced worker.

E. M. B.

(Continued on Page 17)



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BOOK REVIEWS

(Continued from Page 15)

Obstetrics for Nurses. By Joseph E. DeLee. Ninth edition, revised and reset. Philadelphia and London: W. B. Saunders Company. 1930.

This is an up-to-date edition of a work which has been accepted as a standard for instruction of nurses for many years. Obsolete reading matter and pictures have been eliminated, and discussions of the more recent advances have been added.

The present edition maintains the same high standard that its predecessors have established, and is probably the most valuable book for nurses that is obtainable at the present time. K. L. S.

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Alpha Naphco—Compound Solution of Alphanaphthol.—Alpha Naphco contains alphanaphthol 10 grams, glycerin, 32 grams; soft soap, 23.8 grams; water to make 100 grams. When tested against *B. typhosus* by the United States Hygienic Laboratory method, alphanaphco has a phenol coefficient of 1.46. Caryl Laboratories, Redondo, California.

Pyridium—Phenylazo-2-6-diamino-pyridin monohydrochlorid.—The monohydrochlorid of an azo dye of the pyridin series, phenylazo diamino-pyridin. Pyridium has marked penetrating power and is non-toxic and nonirritant in therapeutic dosage. It is rapidly eliminated through the urinary tract. It is bactericidal in aqueous solution against staphylococcus, streptococcus, gonococcus, *B. coli* and even *B. diphtheriae*. It is proposed for use in gonorrheal infections, urinary diseases, and in colon bacillus and mixed infections. The drug is supplied in the form of Aqueous Solution of Pyridium, 1 per cent; Pyridium Ointment, 10 per cent; and Pyridium Tablets, 0.1 gram. Merck & Co., Inc., New York.

Pollen Antigens (National).—Liquids obtained by extracting the dried pollen of plants with a 0.5 per cent sodium chlorid solution containing sodium bicarbonate and phenol. For a statement of actions and uses, see Allergic Protein Preparations, New and Nonofficial Remedies 1930, p. 23. Pollen Antigens (National) are marketed in packages of one 5 cubic centimeter vial containing respectively 50, 100, and 250 units per cubic centimeter. The following products have been accepted: Ragweed Pollen Antigen (National) and Timothy Pollen Antigen (National). National Drug Co., Philadelphia.—*Jour. A. M. A.*, July 5, 1930, p. 35.

Mead's Five D Cod-Liver Oil with Viosterol.—A brand of cod-liver oil with viosterol 5 D (N. N. R.). For a discussion of the actions and uses of cod-liver oil with viosterol 5 D, see New and Nonofficial Remedies 1930, p. 257. Mead Johnson & Co., Evansville, Indiana.

(Continued on Next Page)

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TRUTH ABOUT MEDICINES

(Continued from Preceding Page)

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Siomine.—Hexamethylenetetramin tetraiodid. Siomine contains 78.5 per cent of iodine. Siomine is decomposed in the intestine with formation of hexamethylenetetramin and iodid, the rate of absorption and excretion being essentially the same as that of inorganic iodids. It therefore produces the effects of ordinary iodids from which it differs only in that it can be administered in solid form. No therapeutic claims are made for the hexamethylenetetramin com-

ponent of siomine, this being present only to render the substance insoluble. The dosage is the same as that of potassium iodid. Siomine is supplied in the form of capsules containing respectively one-half grain, one grain, two grains, and five grains. Pitman-moore Co., Indianapolis.

Ephedrin Hydrochlorid (P. D. & Co.).—A brand of ephedrin hydrochlorid—N. N. R. For a discussion of the actions and uses of ephedrin hydrochlorid, see New and Nonofficial Remedies, 1930, p. 167. Ephedrin, hydrochlorid (P. D. & Co.) is supplied in the form of capsules containing respectively three-eighths grain and three-fourths grain. Parke, Davis & Co., Detroit.

Elixir of Pyramidon.—Each four cubic centimeters (one fluidram) contains pyramidon (New and Nonofficial Remedies, 1930, p. 314) 0.162 gram (2½ grains) in a menstruum containing alcohol, 20 per cent. H. A. Metz Laboratories, Inc., New York.

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Pyramidon Tablets One and One-Half Grains.—Each tablet contains pyramidon (New and Nonofficial Remedies, 1930, p. 314), 1½ grains. H. A. Metz Laboratories, Inc., New York.

Thio-Bismol.—Sodium bismuth thioglycollate. A salt formed by the interaction of sodium thioglycollate and bismuth hydroxid containing approximately 38 per cent of bismuth. Thio-bismol is proposed as a means of obtaining the systemic effects of bismuth in the treatment of syphilis (Bismuth Compounds, New and Nonofficial Remedies, 1930, p. 94); it is a water soluble compound, readily absorbable, and produces relatively little local injury. The product is supplied in the form of ampoules containing 0.2 gram of thio-bismol. Parke, Davis & Co., Detroit.—*Jour. A. M. A.*, July 19, 1930, p. 200.

ACCEPTED DEVICES FOR PHYSICAL THERAPY

The following have been accepted by the Council on Physical Therapy of the American Medical Association for inclusion in its list of accepted devices for physical therapy:

The Davis Inhalator.—The Davis Inhalator (Bulard-Davis, Inc., New York), is a portable apparatus designed to assist physicians in the administration of oxygen or a mixture of oxygen and 5 per cent carbon dioxid in resuscitation in various forms of asphyxia. Compressed gases are contained in tanks and by a reducing valve may be delivered at the desired pressure through a breathing bag and mask as demanded by artificial or natural breathing of the patient. The apparatus meets the requirements for inhalators of approved standard and incorporates devices which make for flexibility, adaptability, and safety.—*Jour. A. M. A.*, July 19, 1930, p. 200.

PROPAGANDA FOR REFORM

Pompeian Olive Oil Not Acceptable for New and Nonofficial Remedies.—The Council on Pharmacy and Chemistry reports that Pompeian Olive Oil was

(Continued on Next Page)



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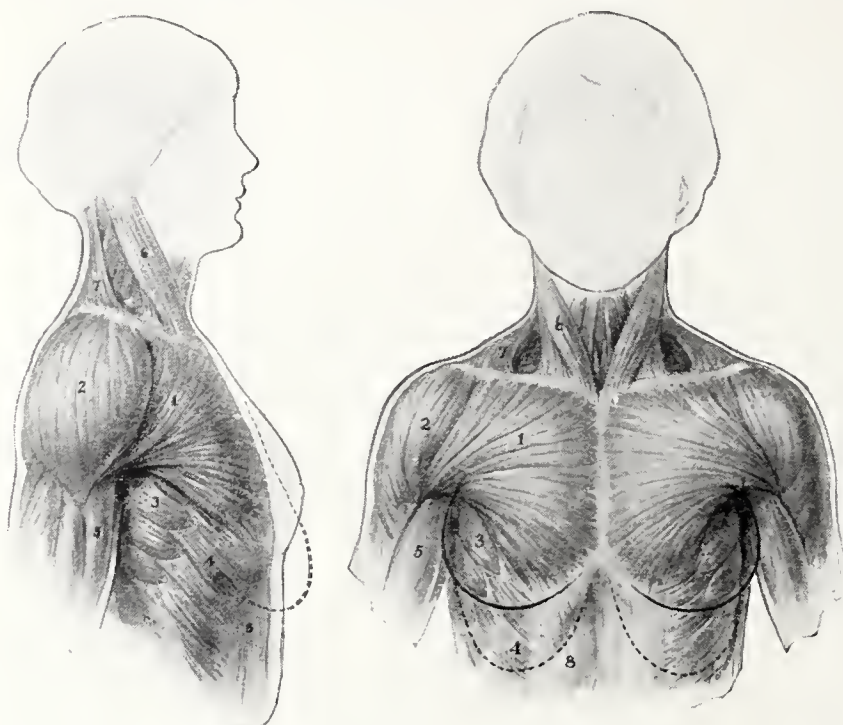
ANATOMICAL STUDIES

for the
Practitioner

(Solid lines indicate the normal breast, dotted lines the sagging or pendant breast.)

1—Pectoralis major. 2—Deltoid. 3—Serratus anterior. 4—Obliquus externus abdominis. 5—Biceps. 6—Sternomastoid. 7—Trapezius. 8—Rectus abdominis.

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Anterior View

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TRUTH ABOUT MEDICINES

(Continued from Preceding Page)

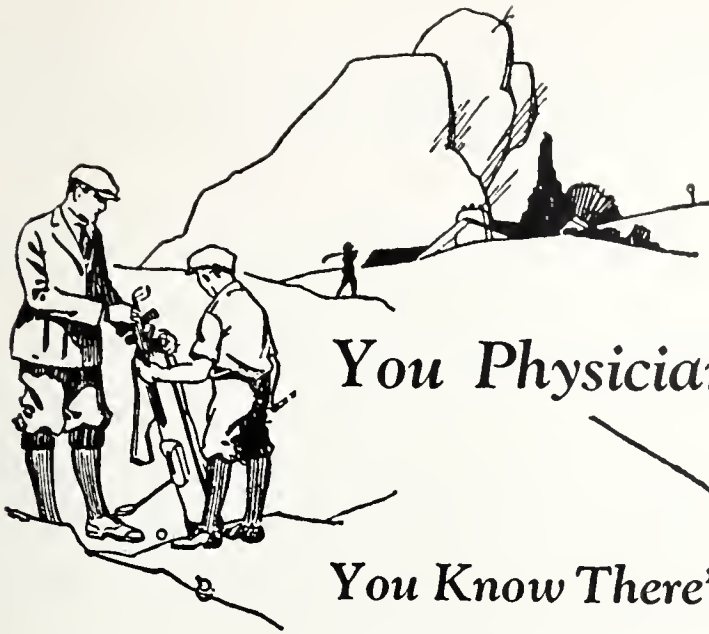
presented by the Pompeian Corporation for inclusion in New and Nonofficial Remedies. The Council explains that the product might be recognized as a brand of olive oil, United States Pharmacopeia, marketed under the pharmacopeial name ("Pompeian" being used merely to identify the firm's brand) were it not that claims of unique advantage and therapeutic potency were advanced. The Council cannot admit in reference to this brand of oil the claim made that the "ease of its digestion and assimilation is far greater than that of any other vegetable or animal oil." After considering the evidence submitted by the proprietors, the Council decided that Pompeian Olive Oil is not acceptable for New and Nonofficial Remedies.—*Jour. A. M. A.*, July 5, 1930, p. 35.

Rickets and Vitamin D.—Without detracting in the least from the merited value of viosterol in the treatment of rickets, certain recent investigations raise a question as to the simplicity of the pathogenesis of rickets implied in the current use of viosterol. It has been pointed out recently that, whereas both viosterol and cod-liver oil are extremely efficacious in curing rickets, only the latter contains in addition the indispensable vitamin A. Although the most obvious function of calcium and phosphorus is in the building of bones, there are other demands for these mineral elements which, at times, become of great importance and it has been shown that, whereas vitamin D is concerned with the calcification of bones, the retention of calcium and phosphorus in the body is largely a function of the level of these materials in the diet. A comparison of the efficacy of cod-liver oil and of viosterol as prophylactic antirachitic agents showed that of 123 children given viosterol 29 per cent were not protected against rickets, while of one hundred given cod-liver oil 3 per cent showed rickets, although the former group received twice the number of units of vitamin D given the latter group.—*Jour. A. M. A.*, July 5, 1930, p. 38.

Therapy with Ovarian Preparations.—The Council on Pharmacy and Chemistry sponsors the following statement on therapy with ovarian preparations in the current (1930) edition of New and Nonofficial Remedies: "Rational as ovarian therapy may theoretically appear to be in some conditions, the actual results are rarely striking, and often nil to the careful observer. It is altogether probable that the activity which may be presented by the fresh gland is not contained in a finished desiccated product, or else, when given by mouth, it is destroyed by the digestive juices; extensive clinical experience has failed to establish the value of desiccated preparations administered orally. There is considerable evidence that the aqueous extracts prepared for hypodermic use are inert . . . much work has been done toward the elaboration of a potent, standardized preparation of the ovary, and as a result of these investigations such potent standardized preparations for use by subcutaneous injection have become available. These preparations have been shown to induce estrus in mature animals and to induce sexual maturity in immature animals. Somewhat limited clinical evidence indicates their probable value in ovarian hypofunction." The Council has omitted all desiccated ovary preparations for oral administration on the ground that there is no adequate evidence for their value and, so far, has not accepted any ovarian hormone preparation, because the evidence for the value of these was considered inadequate.—*Jour. A. M. A.*, July 5, 1930, p. 64.

Desiccated Pituitary Preparations Omitted From New and Nonofficial Remedies.—In 1928 the Council on Pharmacy and Chemistry discussed the lack of acceptable evidence for the value of pituitary preparations administered by mouth and concluded that extensive clinical experience had failed to establish the value of desiccated pituitary preparations for oral administration. At that time the Council decided to omit such preparations when the period for the acceptance of the products included in New and Non-

(Continued on Page 22)



You Physicians Who Play Golf,

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Dextri-Maltose No. 1 (with 2% sodium chloride), for normal babies. Dextri-Maltose No. 2 (plain, salt free), for salt modifications by the physician. Dextri-Maltose No. 3 (with 3% potassium bicarbonate), for constipated babies. "Dextri-Maltose With Vitamin B" is now available for its appetite-and-growth-stimulating properties. Samples on request.

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Similarly in artificial infant feeding. For the normal infant, you prefer cow's milk dilutions. For the athreptic or vomiting baby, you choose lactic acid milk. When there is diarrhea or marasmus, you decide upon protein milk. In certain other situations, your judgment is evaporated milk.

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"RpH (alkaline reserve) values of 8.4 to 8.55 are normal for adults. It has been Marriott's experience that if the RpH does not fall below 7.9, the acidosis may be successfully combated by administration of ALKALIES by mouth."

ACIDOSIS—An intoxication with Acid toxins and a corresponding lessening of the Alkaline Reserve (RpH), is present in nearly all acute and chronic diseases.

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TRUTH ABOUT MEDICINES

(Continued from Page 20)

official Remedies should expire, unless new evidence became available in the meantime permitting a different action. At the expiration of this period no favorable evidence had become available. Accordingly the Council has directed the omission of all desiccated pituitary preparations now included in New and Nonofficial Remedies, namely: Desiccated Pituitary Body—Armour, Desiccated Pituitary Substance (Anterior Lobe)—Armour, Desiccated Pituitary Substance (Posterior Lobe)—Armour, Anterior Pituitary Desiccated—Lederle, Posterior Pituitary Desiccated—Lederle, Whole Pituitary Desiccated—Lederle, Pituitary Body Anterior Lobe Desiccated—Mulford, Anterior Pituitary—P. M. Co. Desiccated, Pituitary Substance—P. M. Co. Desiccated, and Posterior Pituitary—P. M. Co. Desiccated.—*Jour. A. M. A.*, July 19, 1930, p. 201.

Lydin Not Acceptable for New and Nonofficial Remedies.—The Council on Pharmacy and Chemistry reports that "Lydin," a product of the Harrower Laboratory Inc., is claimed to be "a physiological sex stimulant of note" consisting of a combination of "the male sex hormone" with "the antisterility fat-soluble vitamin E." It is marketed in capsules for oral administration and is recommended for use in the treatment of impotence with the suggestion that "the indications are too well known to be enumerated." The Council publishes a report on the biologic assay of "Lydin" by T. F. Gallagher sent to the Council by F. C. Koch, head of the Department of Physiological Chemistry and Pharmacology of the University of Chicago. This study shows that when administered by mouth "Lydin" is without effect as measured on capons by the comb-growth method or on guinea pigs as measured by the spermatozoa motility test. Brown-Sequard was convinced that an extract of the testes promoted the vitality, but his

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experiments were not confirmed or accepted. In the meantime the available knowledge of the glands of internal secretion has aroused commercial promoters to the exploitation of all sorts of glandular extracts and combinations without an iota of evidence to show that any preparation of extracts of the testes, singly or in combination, has ever been shown to have the slightest effect on the human body when given by mouth.—*Jour. A. M. A.*, July 19, 1930, p. 201.

Testicular Grafting.—At the International Physiological Congress in Boston last summer, Voronoff boldly reported in relation to his widely proclaimed testicular grafting that the successive phenomenal results of the transplantation are now definitely established. Recently Moore has discussed the astounding claims that are prevalent in this field and remarks that the abence of dependable indexes for the alleged "hypogonadism" in man, or the inability to utilize proved indicators for hormone introduction by any means, appears to have caused but little concern to clinicians employing these supposedly remedial measures. Astonishing as it may be, published statements of the effect of hormone introduction, or alleged hormone increases from the intact organs, claim improvements for conditions that fairly well exhaust the ills to which man has fallen heir. Moore concludes that there is no known acceptable evidence that nonviable testes grafts, that is, grafts that fail to become incorporated within the body and actively secrete, exert any immediate or remote beneficial effect on the host organism.—*Jour. A. M. A.*, July 19, 1930, p. 203.

The Vreelands Quackery.—Clayt Vreeland of Cleveland, Ohio, has for some years been defrauding the baldheaded. He did business under such trade names as "The Vreelands, Inc.," "The Vreelands," and "Vreeland." Finally the postal authorities got around to Mr. Vreeland and on June 24, 1930, the Postmaster General issued a fraud order debarring from the United States mails The Vreelands, Inc..

(Continued on Page 27)

WOUNDS- INJURIES

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¼ cup cold water					
1½ cups boiling water . .					
Grated rind of ½ lemon . .					
3 tablespoons lemon juice or 1 tablespoon fruit acid	30			3	
½ gr. saccharin . . . . .	....	....	....	....	....
½ cup mashed banana . .	120	1.5	1	26	....
6 tablespoons cream, whipped	85	2	34	2	....
Total	11.5	35	51	485	
One serving	2	6	5	81	

Soak gelatine in cold water five minutes. Boil rind and water for two minutes, add gelatine and stir until dissolved. Add lemon flavoring and saccharin, strain and chill. When nearly set, fold in mashed banana and whipped cream, mold and chill until set.

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A great many physicians are prescribing Knox Sparkling Gelatine for cases in which diet is an important factor as a preventive or corrective. Some physicians, however, merely prescribe "Gelatine".

There is such a great difference in gelatines that it is very necessary to designate the kind of gelatine.

For example, our attention has just been called to a case for which a physician prescribed "gelatine" in the diet of a diabetic. When indications of acid developed it was learned that the patient had unwittingly been using a ready-flavored jelly powder containing about 85% sugar, 2% acid-flavoring, 12% gelatine and coloring matter.

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This is an absolute assurance of the purest gelatine and an insurance against the presence of any foreign element likely to upset the essential balance of the diet.

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We would like to send every physician a publication on "Diet in the Treatment of Diabetes" by a widely known dietetic authority. This publication presents many new ideas and recipes in the preparation of beneficial diabetic diets. It is of such character that it may be placed in the hands of any patient with the assurance that it will act as a safe diet control, and at the same time make the patient more content with the prescribed diet. This publication will be sent in any quantity, to supply the diabetic patients of any physician who will mail this coupon.

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The results already attained in the fight to eradicate diphtheria prove that by applying the scientific knowledge and resources at the command of physicians not one child need die from this dreaded childhood disease—not one need suffer.

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TRUTH ABOUT MEDICINES

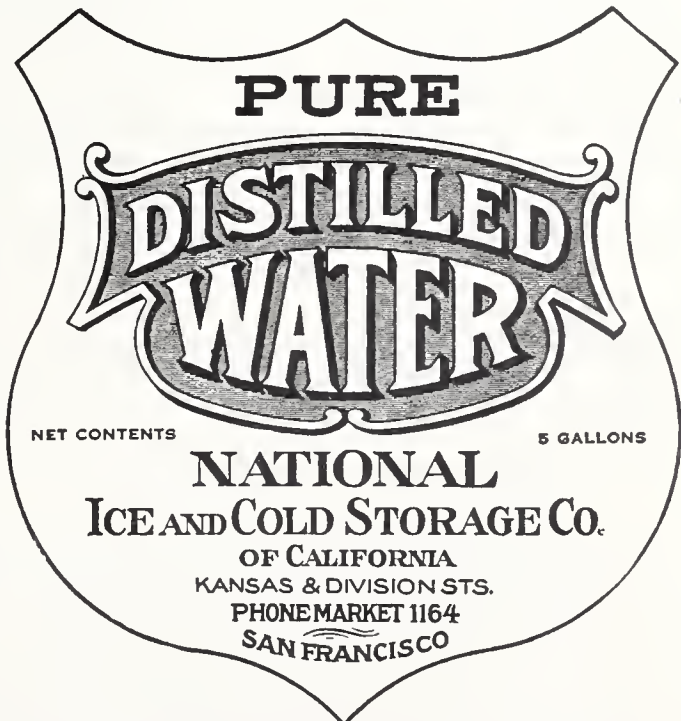
(Continued from Page 23)

The Vreelands, Vreeland, and their officers and agents. The business was the rather simple one of selling a preparation for the alleged growing of hair. The stuff was called "Hairerbs." It was found to be composed of glycerin and water with a trace of sage oil.—*Jour. A. M. A.*, July 19, 1930, p. 219.

The Frank W. Friend Fraud.—Under the trade name "Frank W. Friend," Mrs. N. F. Lockwood of Littleton, Colorado, has been selling through the mails a so-called Wonder Remedy for Men. The alleged wonder was composed largely of extract of saw palmetto berries and, according to the postal official's report, was obtained from Parke, Davis & Co. Mrs. Lockwood started the business about November 1928. She claims to have had the assistance of her brother, Frank L. Palmer, who has been associated with similar ventures, in preparing the advertising matter. According to the postoffice authorities Mrs. Lockwood got two dollars a box for one hundred pills which cost her seven and a half cents from Parke, Davis & Co. On June 30 the Postmaster General debarred the Frank W. Friend fraud from the mails.—*Jour. A. M. A.*, July 26, 1930, p. 285.

A Baker Institute "Diagnosis."—The history of every quack concern that professes to cure cancer is monotonously alike. The scheme consists in diagnosing every simple skin lesion, no matter how benign, as cancer. Caustics are then applied and a hole eaten in the tissues with inevitable disfigurement and the patient finally sent back home "cured." Of course occasionally the quacks get real cases of malignant disease. Most of these are sent back home in time to avoid the necessity of the "institute" having to sign the death certificate. A recent case is of interest in that the victim showed more intelligence than is fre-

(Continued on Next Page)



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Calcreose—calcium creosote—is a mixture containing in loose chemical combination approximately equal weights of creosote and lime and provides a form of creosote which patients will tolerate.

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OUT OF TOWN PHYSICIANS ARE CORDIALLY INVITED TO ATTEND CLINICAL DEMONSTRATIONS OF THE MORE IMPORTANT UROLOGICAL DISEASES. ARRANGEMENTS ARE AVAILABLE FOR THE EXAMINATION, STUDY AND TREATMENT OF CASES WITH CYSTOSCOPIC DEMONSTRATIONS. A COURSE IN CYSTOSCOPY WITH URETERAL CATHETERIZATION, KIDNEY FUNCTIONAL TESTS, PYELOGRAPHY, FULGURATION OF BLADDER TUMORS, ETC., WILL BE GIVEN.

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TRUTH ABOUT MEDICINES

(Continued from Preceding Page)

quently displayed and thus saved himself a considerable suffering and disfigurement. Mr. I, an Iowa farmer, developed a lesion on the chin that worried him. He went to Muscatine to the Baker Institute, where he was "examined." Mr. I reports that he was told that he had cancer of the chin and would have to pay \$250 and also \$60 a week hospital charges for four to six weeks. The Baker Institute, according to the victim, applied their cancer remedy. Then the young man got to thinking and decided that the Iowa State University was not far away and that they probably knew as much about cancer as Mr. Baker and his "institute." He went to the College of Medicine of the state University of Iowa, where the dermatologic

department diagnosed the lesion as *Tinea barbae*. Treatment for ringworm of the beard was instituted and in less than two weeks the young man went home.—*Jour. A. M. A.*, July 26, 1930, p. 285.

Little Lectures on Medical Literature.—There is no literature virtue so great as brevity. The good gardener is he who can make two blades of grass grow where one has grown before; but the good writer is he who can make one word do the work of two. This does not mean abbreviation nor incomplete sentences; it does mean eliminating all extraneous matter and saying what you have to say in the most direct style possible to convey the meaning. Don't try to put all you know into one article. Save something; you may need it later.

(Continued on Page 30)

The Buerger Universal Cystoscope

NOTE: The correct model is made by the American Cystoscope Makers, Inc., and approved by Dr. Leo Buerger. All other models of Buerger Cystoscopes are taken from the ones shown.

This instrument, in the various combinations shown, has been the most popular cystoscope of the entire line. For many years it has been the standard instrument for general work in office and hospital. It is excellently suited for bladder examinations, treatment and operations. For routine work, it cannot be excelled.

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The following formula is submitted as a means of preparing suitable nourishment in intestinal disturbances of infants usually referred to as summer diarrhea:

Mellin's Food . . . **4 level tablespoonfuls**
Water (boiled, then cooled) . . . **16 fluidounces**



This mixture contains proteins, carbohydrates and mineral salts in a form readily digestible and available for immediate assimilation.

The need for protein is well understood as is also the value of mineral salts, which play such an important part in all metabolic processes. Carbohydrates are a real necessity, for life cannot be long sustained on a carbohydrate-free diet. It should also be stated that the predominating carbohydrate in the above food mixture is maltose—which is particularly suitable in conditions where rapid assimilation is an outstanding factor.

Further details in relation to this subject and a supply of samples of Mellin's Food sent to physicians upon request.

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(Continued from Page 28)

Some writers, apparently, write to fill space. It seems that they are trying to use as many words as possible in describing their ideas. Clean-cut ideas do not require so many words. Therefore get your thoughts clearly outlined and organized before you start to write. Then, after you have written, go over the article with the thought of eliminating every unnecessary word, every unnecessary expression, every unnecessary paragraph. Sometimes, you may even decide to eliminate the entire article and try again.

According to a correspondent of the journal office, a certain physician made out a list of books he wanted to read, but he calculated it would take two hundred years to read them. He revised the list. Our correspondent believes that if a number of 800 and 1000-page books were reduced to 300 pages they would be greatly improved, both as to literary quality and cost. He also suggests reducing some of the twenty-page articles in medical journals to three pages. Is he right?

Another one of his pet grievances is the bibliography. To quote him: "Did you ever read a great long article in a medical journal and at the end of it find a bibliography as long or twice as long as the article, giving references to all literature in all languages of all parts of the earth, to everything that had ever been published on that subject since 'Heck' was a pup down to the time Al Smith was defeated, and at the same time know in your own mind that the writer never saw five per cent of the bibliography in his life?" To be perfectly frank about it, we have. And during the past year the *Pennsylvania Medical Journal* has attempted to eliminate all the bibliographies not cryingly demanded by the context of their accompanying papers. A bibliography, of course, is preferable to long quotations; but we believe that it would usually be sufficient, in most cases, to add a footnote that "the author will be delighted to supply interested inquirers with a complete bibliography."

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Becoming personal, our correspondent inquires "About what per cent of your subscribers do you suppose read all of every copy of your medical journal, and about what per cent ever read an entire copy occasionally?" We should be flattered if any of them did. A journal is not intended for total consumption, but a general journal has to compromise by publishing a variety of things, hoping that something therein will appeal to each of its readers. Nevertheless, more of the articles would certainly be read were they "boiled down to the consistency of a veritable syrup," to quote a contributor who obligingly reduced the volume of his paper.

As a practical example of condensation, let us quote a paragraph verbatim from our correspondent, and see how much can be eliminated without damaging the sense: "Have you ever read a chapter in a medical book or an article in a medical journal and found a bibliography at the end of it about the same length and thought of the fact that possibly there are not half a dozen libraries in the United States that contain all the literature mentioned in the bibliography?" A revision might read: "Have you ever read a medical article to which was appended a bibliography of equal length and realized that possibly not six American libraries contain all the literature mentioned?" The first sentence contains fifty-seven words, the second twenty-nine words—a reduction of twenty-eight words, yet both sentences mean the same thing.

Brevity, then, is not only the soul of wit; it is the wit of writing.—Mary S. Blair, in *The Pennsylvania Medical Journal*, July 1929.

Surgical Babbitts a Growing Abuse.—A man is known by his associates. American surgery is known by the men who visit foreign clinics as representative of surgery in the United States. On the other side
(Continued on Page 35)

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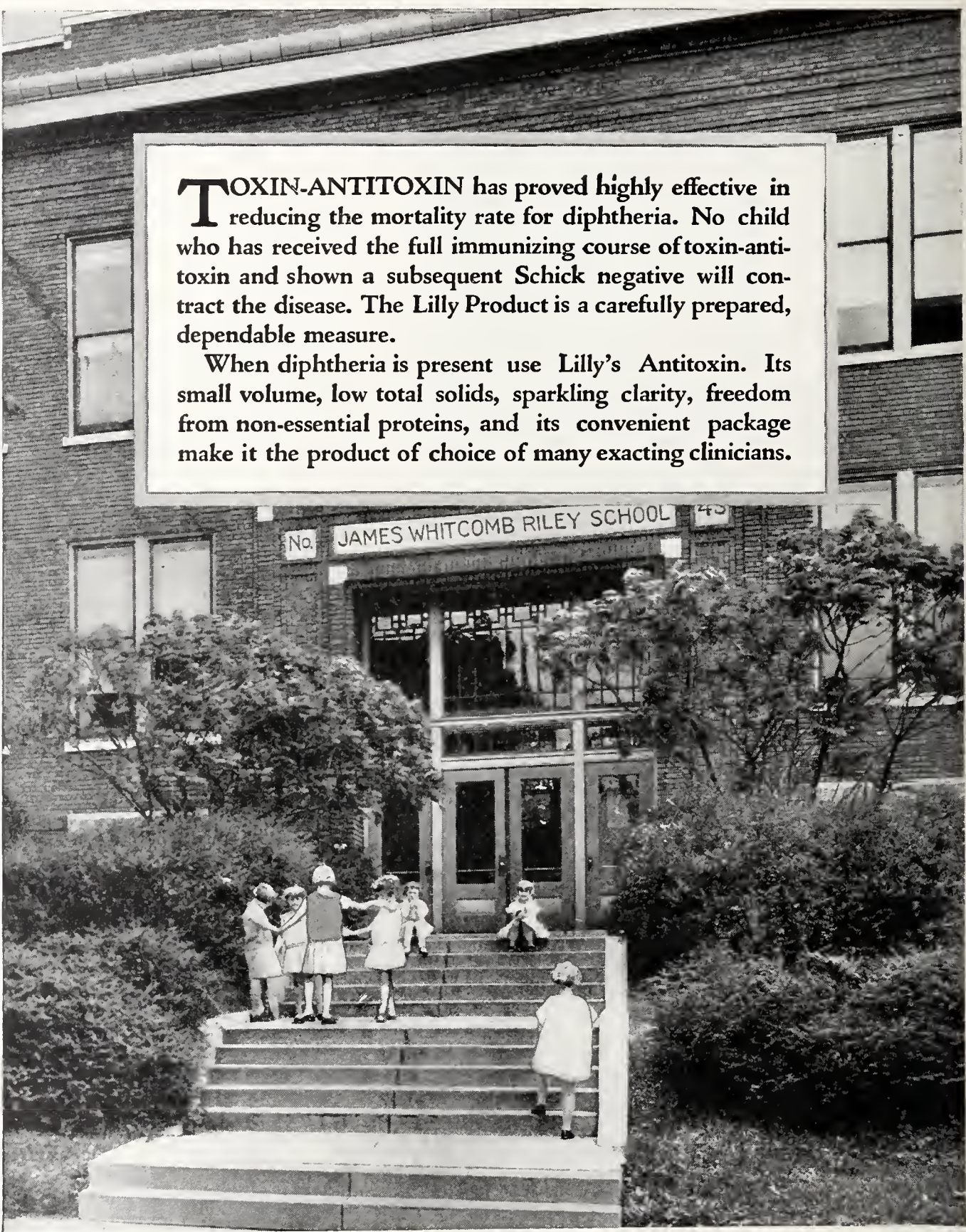
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CALIFORNIA AND WESTERN MEDICINE

VOLUME XXXIII

SEPTEMBER, 1930

No. 3

HYPOCHLOREMIA*

By GEORGE M. CURTIS, M. D.
Chicago, Illinois

THE importance of the various blood electrolytes in relation to the life and health of animals and of man is now well recognized. Changes in the normal concentration of certain ions, or fluctuations in the balance between others, are associated with certain morbid conditions occurring spontaneously or produced experimentally. Following surgical operations, during which ether is used as the anesthetic, there occur definite changes in the calcium-potassium ratio of the blood. These are accompanied by a period of postoperative lethargy, and a marked tissue thirst, (Reuter and Andrews¹). The lowering of the blood calcium in parathyroid tetany is now a matter of common observation, likewise its increase subsequent to the administration of Collip's hormone. In cretinism, the blood iodide is low. It is similarly lowered in individuals with non-toxic nodular goiters (de Quervain and Smith³). Clinical blood-chemical studies by Lunde⁶ seem to have demonstrated the significance of the blood iodide in relation to the preoperative iodine treatment of exophthalmic goiter and the results of the subsequent thyroidectomy.

The chlorides of the blood, since they are the more readily determined by various analytical methods, have been particularly studied. The hypochloremia of upper intestinal obstruction has been frequently confirmed. A similar lowering of the blood chlorides is associated with the fatal effect of the total loss of gastric juice (Dragstedt and Ellis⁴). Orr and Haden⁵ have recently reported that hypochloremia also occurs in dogs with fatal experimental peritonitis. We have observed a marked hypochloremia accompanying a strangulated hernia of omentum.⁶ The blood chloride is low despite the blood concentration of the so-called toxemia following extensive superficial burns (Underhill et al.⁷). The symptoms of heat cramps, called also miner's cramp, stoker's cramp, or fireman's cramp, are initiated by a marked loss of perspired chlorides and are relieved by giving salt solutions. In view of these and other clinical findings, it appeared that the

associated hypochloremia was possibly of more than subordinate importance. As a consequence, we have produced and studied it, as well as other changes in the blood chemistry, by the method of peritoneal dialysis.

Various crystalloids may be readily dialyzed away from the circulating blood through celloidin tubes inserted in the course of the blood stream. This process, called *vividdiffusion*, was devised by Abel, Rowntree and Turner.⁸ Dialysis also readily occurs through the serous membranes lining the body cavities.^{9 10} Cohnheim¹¹ found that chlorides soon appear in glucose solutions injected intraperitoneally in rabbits. This is likewise true when varying concentrations of saccharose are employed.¹² When distilled water is injected intraperitoneally, a higher per cent of chlorides, up to 0.63 per cent, calculated as sodium chloride, is deviated from the blood stream and the blood chloride falls.¹³ The intraperitoneal fluid soon becomes isosmotic and obtains up to 1.5 per cent of albuminous substance. Achloride electrolytes, as well as organic crystalloids, are likewise dialyzed from the blood stream. Consequently, it has been possible to lower the blood chloride experimentally by perfusing distilled water, or various chloride-free solutions, through the peritoneal cavity.¹⁴

COMMENT ON EXPERIMENTS WITH RABBITS

Healthy male rabbits, weighing between 2 and 2.5 kilos, were used throughout the experiments to be described. They were carefully prepared and given ample food and water, according to methods which have been outlined elsewhere.¹² After binding them to a padded animal board, a soft rubber catheter (a demeure) was introduced into the bladder. They were then lightly covered and kept warm by overhanging lamps. Under local anesthesia a steel trocar-inlet was inserted through the upper left abdominal wall, and by means of a lower abdominal incision a large, multiply perforated rubber tube was placed free in the right lateral peritoneal cavity, posterior to the intestines. In this manner extensive perfusion was assured. The perfusion fluid employed was maintained at body temperature by passage through a heated coil and the perfusion rate was kept uniformly at 500 cubic centimeters per hour. Blood was collected from the peripheral veins, or at death from the right heart.

In fifteen experiments distilled water alone was perfused through the peritoneal cavity. Within an hour there is an increase in the respiratory rate and fibrillary twitchings appear, usually in

* From the Department of Surgery of the University of Chicago.

* Read before the General Medical Section of the California Medical Association, at the Fifty-ninth Annual Session, Del Monte, April 28-May 1, 1930.

* The experimental work, upon which this paper is based, was done in collaboration with Dr. C. B. Davis and Mr. G. A. Pacheco.

the muscles of the abdomen or extremities. These become more generalized, then coarser and more severe, and are followed by clonic and eventually tonic convulsions of increasing severity. Spasmodic contractions of the diaphragm also appear, and the animals die in from two to five hours after the beginning of the perfusion, usually after a severe convulsion.

During an experiment chloride is dialyzed from the blood and tissues. At the end there is often a marked lowering of the blood chloride. This hypochloremia may reach as low as 118 milligrams per 100 cubic centimeters of whole blood. The carbon dioxide combining power of the plasma falls and may become as low as ten volumes per cent. There is a moderate rise in the non-protein nitrogen, and a slight elevation of the urea concentration. The secretion of urine diminishes soon after the establishment of perfusion, and finally completely ceases. This subsequent anuria is a constant finding. Abel⁸ has also noted that little or no urine was secreted during his vividiffusion experiments.

The development of the symptoms and the subsequent lethal effect are not associated with an hypoglycemia, since the terminal blood sugar varied between 242 and 284 milligrams per 100 cubic centimeters; in fact, it was higher than that found preceding the commencement of the perfusion. The possibility of hypoglycemia, however, was considered. To answer the question of hypoglycemic convulsions more precisely, particularly in regard to a possible depletion of the sugar reserves by dialysis, in fifteen experiments 0.12 per cent glucose, about the concentration normally present in the rabbit's blood, was added to the perfusion water. There was no appreciable effect upon the development of the usual symptoms or the ordinarily fatal outcome. The usual hypochloremia developed, as well as changes in the blood chemistry similar to those following the perfusion of distilled water alone, with this particular exception, that the terminal blood sugar became even higher; in one instance 320 milligrams per 100 cubic centimeters. There was little or no secretion of urine, and in most instances an anuria. In all thirty experiments definite hemolysis was observed. Demineralization occurred, to the extent of the diffusibility of the dialyzable electrolytes. There was also a loss of albuminous substance, washed out by the perfusing fluid. Further experiments were then devised in an attempt to evaluate these factors in so far as they might be causes of the development of the symptoms and of the ordinarily fatal outcome.

To overcome the effects of demineralization of the blood due to the dialysis of blood sodium, potassium, calcium and chloride ions into the perfusing distilled water, Ringer's solution with glucose (NaCl 0.7 per cent, KCl 0.03 per cent, CaCl₂ 0.025 per cent, glucose 0.143 per cent) was substituted and was perfused through the peritoneal

cavity by the same methods. During the course of these experiments the animals showed no evidence of increased nervous irritability. There were no muscular twitchings, tremors or convulsions. The animals were alive and in good condition when perfusion was terminated at the end of eight or nine hours. The blood chloride at the end of an experiment was slightly higher than before the perfusion began. During these experiments there was a continuous secretion of urine. Usually this was at a normal even rate; however, in one animal a moderate diuresis ensued during the second hour of perfusion. There was some hemolysis, and albuminous substance was washed out by the perfusion fluid.

The relative importance of the individual ions was then considered. The potassium and calcium were first withdrawn from the perfusion fluid and 0.9 per cent pure sodium chloride substituted in place of Ringer's solution. In half the experiments, 0.12 per cent pure glucose was added. The sodium chloride used in making this solution, and in subsequent experiments, was the purest obtainable (Kahlbaum's), and contained no other ions. Four animals were alive and in good condition when perfusion was terminated at the end of 8, 8, 9, and 10 hours respectively. One animal, perfused with saline containing glucose, showed definite muscular twitchings and contractions. The others were quiet during the experiments. All four showed increased irritability at the end. During all experiments there was a continuous secretion of urine, and in one animal a moderate diuresis occurred. The whole blood chlorides at the end were higher than previous to the commencement of perfusion, averaging 546 milligrams per 100 cubic centimeters. The blood sugars were higher in the experiments in which glucose was used, averaging 191 milligrams per 100 cubic centimeters. There was a fall in the carbon dioxide combining power of the plasma, and a slight decrease in the N. P. N. and urea concentrations. The serum calcium fell, in one experiment, to 2.9 milligrams per 100 cubic centimeters. This animal showed no muscular twitchings, tremors or contractions and was quiet during the latter part of the perfusion. There was thus a *hypocalcemia* without tetany. There was a slight hemolysis.

An isotonic solution without electrolytes, 4.2 per cent pure glucose, was then used. Chloride is readily dialyzed from the blood into intraperitoneal glucose solutions.¹¹ In these experiments, increased respirations, muscular twitchings, tremors, and convulsions ensued. The picture, however, was not typical of the symptoms ordinarily following the perfusion of distilled water alone. The animals died in from 2½ to 7 hours. The terminal blood was hypochloremic, 136 milligrams per 100 cubic centimeters. There was an enormous rise in the blood sugar. Perfusion of an isotonic solution containing 0.45 per cent sodium chloride and 2.1 per cent glucose had no such lethal effect and the animal was alive when the

experiment was terminated at the end of 9½ hours. The terminal blood in this animal showed a slight rise in the chloride content and an enormous increase in the sugar concentration. Another animal was alive when the perfusion of a hypertonic solution, 0.9 per cent sodium chloride and 2.1 per cent glucose, was terminated at the end of eight hours.

Ringer's solution with glucose, but *without sodium chloride*, (KCl 0.03 per cent, CaCl₂ 0.025 per cent, glucose 0.143 per cent) was then used. In this manner adequate amounts of calcium and potassium were supplied during the perfusion, but no sodium and inadequate chloride, since by dialysis chlorides enter this hypotonic fluid from the blood stream. Increased respirations, muscular twitchings and convulsions ensued as the perfusion continued, and the animals died in between five and six hours. The hypochloremia which developed was not so marked as in the distilled water experiments, 181 milligrams per 100 cubic centimeters. The secretion of the urine diminished and then ceased. There was a definite hemolysis and a loss of albuminous substance in the perfusion fluid.

CONCLUSIONS

A consideration of the preceding experiments led to the hypothesis that the loss of chloride was an important factor in the development of the characteristic symptoms and the ordinarily fatal outcome following the perfusion of distilled water through the peritoneal cavity. Whether this might be due to the specific deficiency, or to some associated change, such as a lowering of the blood osmotic concentration, was not clear. The hypothesis was tested experimentally by supplying an adequate amount of pure sodium chloride alone to the blood stream throughout the transperitoneal perfusion with distilled water. This was accomplished by timed intravenous injections by means of the Woodyatt pump.

After a number of unsuccessful attempts, it was found best to inject a 2.5 per cent solution of pure sodium chloride at the rate of one cubic centimeter per minute into one of the cannulated jugular veins. When too concentrated solutions are used, for example, nine per cent, thrombosis occurs locally and in one animal was followed by pulmonary embolism. If the solution is too dilute, sodium chloride is not supplied as rapidly as it is dialyzed away; also too much water must be simultaneously injected.

When distilled water or distilled water with glucose is perfused through the peritoneal cavity, the muscular symptoms soon develop, and the effect is ordinarily fatal in from two to five hours, on an average in about three hours. However, by supplying adequate sodium chloride intravenously by this method, it was possible to keep one animal alive 17½ hours—five times as long as during the perfusion of distilled water alone. During the experiment there was an occasional mild muscular fibrillation. There were no severe tremors or no convulsions. A marked diuresis oc-

TABLE 1

	Blood before perfusion Mg. per 100 cc.	Blood at end of experiment Mg. per 100 cc.
NaCl	463	402
N. P. N.	37.5	40
Urea	14	21
Sugar	138	163
Plasma CO ₂ capacity	45 cc. per 100 cc. plasma	22 cc. per 100 cc. plasma
Plasma NaCl	592	750
Serum Calcium	9.3	3.8

curred, lasting about 12½ hours, but decreasing during the last five hours until the urinary secretion was slightly less than normal at the end of the experiment. There was a slight fall in the whole blood chloride, however, no hypochloremia as in the water-alone experiments. The plasma chloride was high. There was no tetany, although the serum calcium fell to 3.8 milligrams per 100 cubic centimeters. A definite hemolysis was present.

BLOOD CHEMISTRY CHANGES

The changes in the blood chemistry are best presented in Table 1.

Rabbit 2.5 kilograms. *Perfusion fluid*, distilled water with 0.12 per cent glucose; *Rate*, 500 cubic centimeters per hour. Simultaneous *intravenous injection* of 2.5 per cent pure sodium chloride at the rate of 1 cubic centimeter per minute. *Duration* 17½ hours.

In a subsequent experiment, the combined intravenous infusion and transperitoneal perfusion were similarly maintained for twelve hours without the development of symptoms. At the end of that time the intravenous injection of sodium chloride was stopped, but the perfusion of distilled water with glucose continued. Muscular twitchings then developed and became more severe; finally convulsions ensued and death followed after five hours of perfusion alone. In another experiment the simultaneous intravenous administration of Ringer's solution *without the sodium chloride* did not prevent the development of symptoms nor the lethal effect, and this animal died 5½ hours after the perfusion began.

SUMMARY

These experiments represent a study of certain of the effects of peritoneal dialysis, particularly in the production of experimental hypochloremia. It is difficult properly to evaluate, with the data at hand, the complex physico-chemical changes which result in the blood and tissues of the dialyzed animals. However, the experiments demonstrate the importance of sodium chloride to life and a state of well-being. In addition, from them may be deduced a rational explanation of the anuria accompanying the hypochloremia of intestinal obstruction.

University of Chicago.

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ASPIRATION IN TONSILLECTOMY—COMPARATIVE MERITS OF POSTURE AND OTHER FACTORS*

A BRONCHOSCOPIC STUDY OF ONE HUNDRED AND TEN PATIENTS

Research Prize Paper of the Fifty-Ninth Annual Session of the California Medical Association

By H. J. HARA, M. D.
Los Angeles

ONE-THIRD of all the surgical operations since 1924 among the American urban population are said to have been for the removal of tonsils and adenoids.¹ With the apparent increase of incidence of postoperative pulmonary complications, the problem of ascertaining the factors that might lead to the production of lung abscess merits earnest consideration.

In recent years much light has been shed on the etiology of postoperative complications. Concerning their causation, investigators in this field are now divided into two schools of thought: those who hold to the embolic, and those who defend the aspiration theories. That infecting emboli play a distinct part in some cases of lung abscess is well supported by both clinical and experimental evidences as shown by Cutler and Hunt,² Schlueter and Werdlein,³ Fetterolf and

Fox,⁴ and many others. It is also true that under certain circumstances, the aspiration of infected material into the air passages contributes to the causation of lung abscess, a fact which is demonstrated by the works of Hoelscher,⁵ Lemon,⁶ Smith,⁷ Crowe and Scarff,⁸ Allen,⁹ Ochsner and Nesbit,¹⁰ Myerson,¹¹ Iglauer,¹² and recently by May and his associates.¹³ A careful review of recent literature on this subject impresses one with the fact that the pendulum of medical thought is swaying toward the side of the aspiration theory.

INCIDENCE

The first lung abscess following tonsillectomy in this country was reported in 1912 by Richardson.¹⁴ Moore¹⁵ estimated the incidence of lung abscess as once in 2500 to 3000 posttonsillectomies. That rate was based on a nation-wide survey by means of comprehensive questionnaires sent out to various throat specialists. Moore thus assembled 202 cases of lung abscess most of which followed tonsillectomy, thirty-nine of the tonsillectomies having been done under local anesthesia. Cutler and Schlueter¹⁶ collected from the literature a total of 1908 cases of pulmonary abscess; 29 per cent of these followed operative procedures, and of such 14.6 per cent occurred after the removal of tonsils. In a series of 602 cases of pulmonary abscess which were observed at the Mayo Clinic by Hedblom,¹⁷ 146 followed operations. Of these operative cases, forty-eight occurred after tonsillectomy.

From the records at the Massachusetts General Hospital the writer collected sixty cases of pulmonary complications which were recorded in the period between May 1921 and October 1927. This series included forty-five lung abscesses, eight lobar pneumonias, four cases of bronchiectasis, and three cases of bronchopneumonia. All followed operations on the upper respiratory tract, chiefly on tonsils and adenoids under inhalation ether anesthesia. Of these sixty patients, thirty-nine were operated on elsewhere than at the Massachusetts General Hospital. When the complications later developed, the patients sought medical aid in the above hospital. The remaining twenty-one cases included two bronchopneumonias, eight lobar pneumonias, and eleven lung abscesses. These patients had been operated on either at the Massachusetts General Hospital or at the Massachusetts Charitable Eye and Ear Infirmary, these two institutions being under the same management. During this same period the average number of tonsillectomies performed each year in these two institutions was 3356. This places the actual known incidence of lung abscess in these two institutions as one in every 2678 tonsillectomies.

SCOPE OF EXPERIMENT

By means of bronchoscopic studies Myerson¹⁰ and Iglauer¹¹ have shown that 40 to 77.5 per cent of patients, immediately following tonsillectomy under ether anesthesia, revealed the presence of blood and mucus in some portion of the bronchial tree. Iglauer reported that when tonsils were removed under local anesthesia, aspiration

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Editors' Note.—This paper was submitted under the nom de plume, Rose Trendelenburg, and received the 1930 Research prize of \$150 at the fifty-ninth annual session of the California Medical Association, Del Monte, April 28 to May 1, 1930. The name of the institution and other identifying references were lacking in the manuscript, but have been inserted by the editor.

Two prizes are awarded by the Association at each annual session—one for the best paper on a clinical subject, the other for the best paper on a research subject. Application to the central office of the Association will bring a leaflet which explains the requirements and rules governing the awards.

took place in 28 to 30 per cent of cases, though with less quantity and penetration.

It is recognized that the normal tracheobronchial system, aside from its ciliary movement, cough reflex, and "peristaltic" action, has inherent tissue immunity against bacterial invasion from the upper respiratory tract. However, in the light of our present knowledge, should any aspirated blood become infected, where could one find more favorable conditions for a good culture medium?

The following studies were made in order to evaluate the various factors which contribute to the causation of aspiration complications.

CLINICAL MATERIAL

The series here reported consists of 110 patients, fifty-four males and fifty-six females, three to fourteen years of age, who came to the laryngological service at the White Memorial Clinic for the removal of tonsils and adenoids in

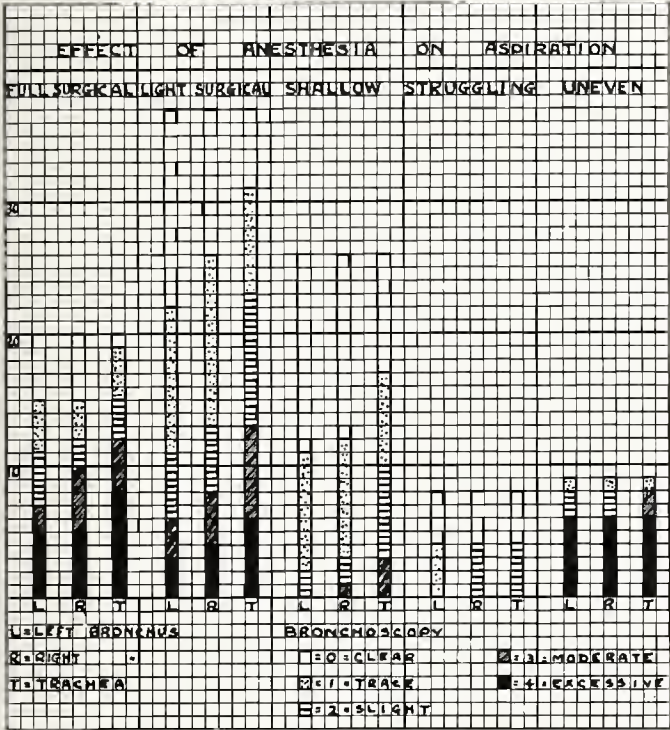


Chart 1-A.—Showing diagrammatically, the effects of different types of anesthesia on aspiration evidences in trachea and bronchi.

the period between April 1929 and January 1930. Each patient received preliminary physical and laboratory examinations, such as urinalysis and bleeding and coagulation times. When the patient gave a history of acute illness within the two weeks before the date set for operation, the operation was postponed and the patient was given a later appointment.

All operations were performed in the forenoon. Unless there was a contraindication, each patient was discharged the same evening, after a throat examination had been made. Each patient received a printed instruction card for the post-operative home care. When emergencies arose after a patient left the clinic, a house call was made by one of the staff on service. Each patient was asked to report to the clinic, when surgical convalescence seemed complete, for a final

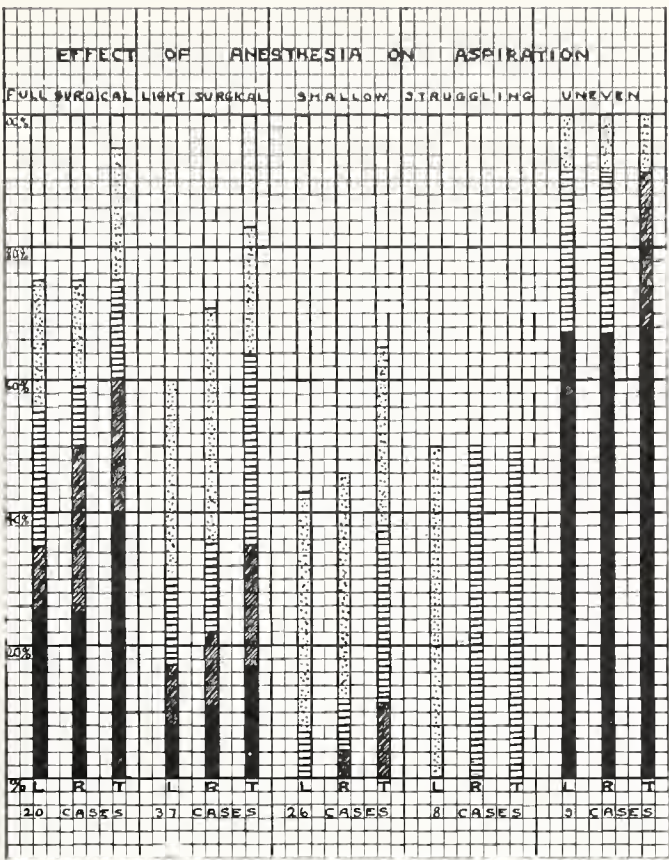


Chart 1-B.—Showing diagrammatically, the effects of different types of anesthesia on aspiration evidences, as noted in different patient groups.

check-up. About fifty patients did return to the clinic for this purpose. To those patients who failed to come back for the final examination, a social service worker was sent to ascertain the after-effects of the operation, with special reference to the presence of cough, fever, precordial pain, and other signs that might point to the presence of a pulmonary complication.

Tables 1 to 6 reveal the scope of the study and the various factors that were considered.

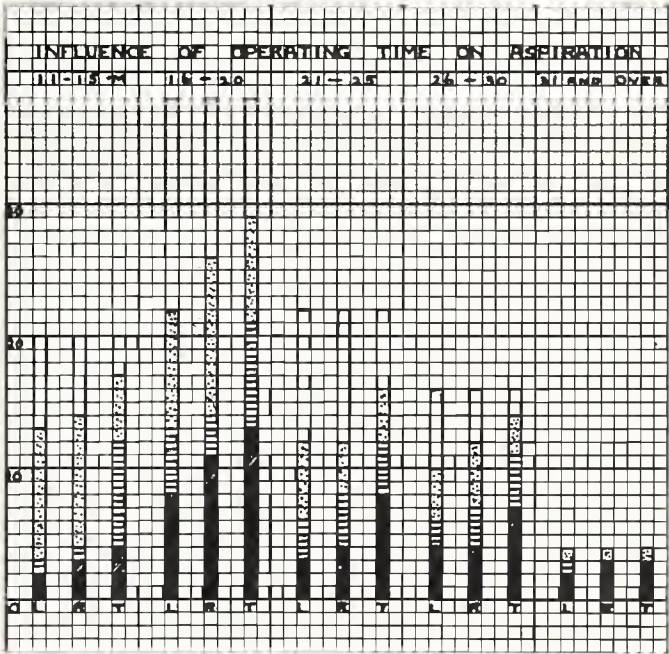


Chart 2-A.—Showing the influence of operative time on aspiration complications (in relation to the trachea and bronchi).

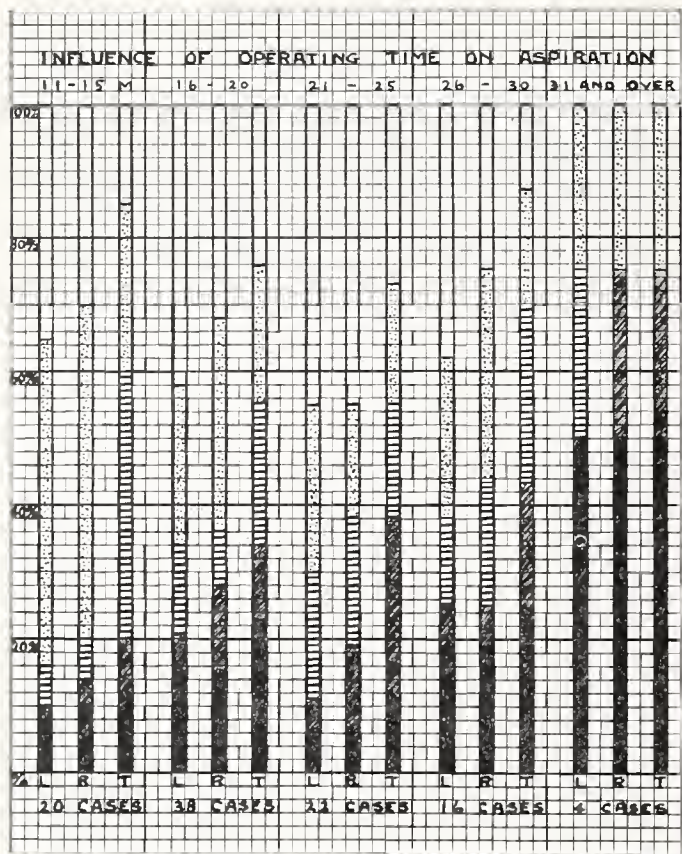


Chart 2-B.—Showing the influence of operative time on aspiration complications (in relation to certain patient groups).

When the bleeding was entirely controlled and the pharynx dry, a direct tracheobronchoscopy was performed by the writer. The contents of each main bronchus and of the trachea were noted and graded according to the amount of blood and mucus present. Where no blood was found it was recorded as zero (0), whereas when the secretion flowed out of the examining-tube mouth, it was designated as four (4). Between these two extremes the various amounts of the contents present were graded according to the number of uniform-sized sterilized sponges which were necessary to dry the air passages. There were forty-five different physician and student operators in this series of tonsillectomies. All used the dissection and snare method. The La Force adenotome was employed for adenoidectomies.

ETHER

The open cone method of inhalation anesthesia was employed at the beginning of each anesthesia. Just before the operation began, this was changed to compressed-air vaporization from which apparatus a rubber tube carried the ether to the angle of the patient's mouth. Earlier in the series the exact amount of ether used for each patient was noted, but it soon became apparent that the amount consumed was influenced by so many different factors that the amounts used were omitted from the final tabulations. The induction time was counted as from the beginning of etherization to the moment when the mouth gag was introduced.

The effects of anesthesia observed on the patients were recorded in five groups as follows: Full Surgical, Light Surgical, Shallow, Strug-

gling, and Uneven (Charts 1-A and 1-B). To maintain a constant degree of anesthesia in a patient for any length of time requires considerable skill and experience. This is particularly so in a tonsillectomy operation, where the mouth is kept wide open and where suction also is used. In estimating the degree of narcosis we were guided by the general reaction of the patient throughout the operation.

It would seem that a shallow anesthesia is preferable to a full or to a light surgical one. Although struggling patients are at times difficult to manage, yet the frequency of aspiration complications seem to be less.

SUCTION

The usefulness of suction in the operation of the upper respiratory tract is universally recognized. In the series here reported, the water-suction tube was used and manipulated by an assistant. In patient 73, the suction was not used; nevertheless only a trace of blood was found in the trachea and none at all in the bronchi of the patient. In patients 83 and 100, each patient was operated on in the Rose position. Patient 83 had an unusually large quantity of blood in the lower air passages, but patient 100 had very little blood

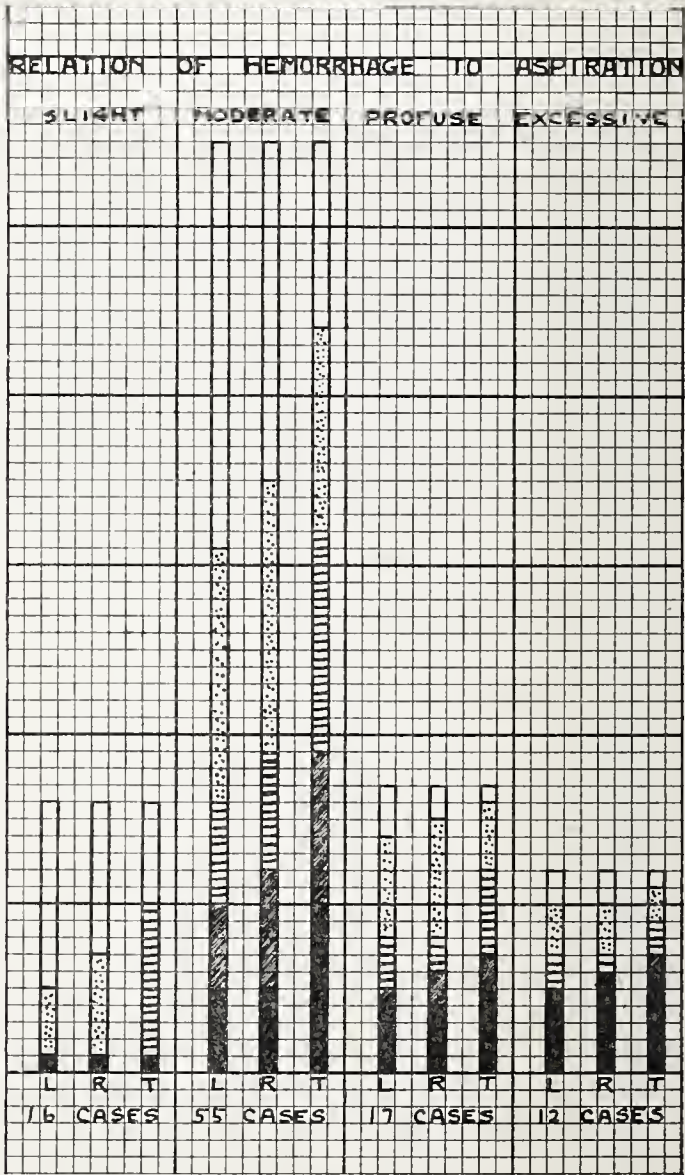


Chart 3-A.—Showing the relation of hemorrhage to injection of the air passages.

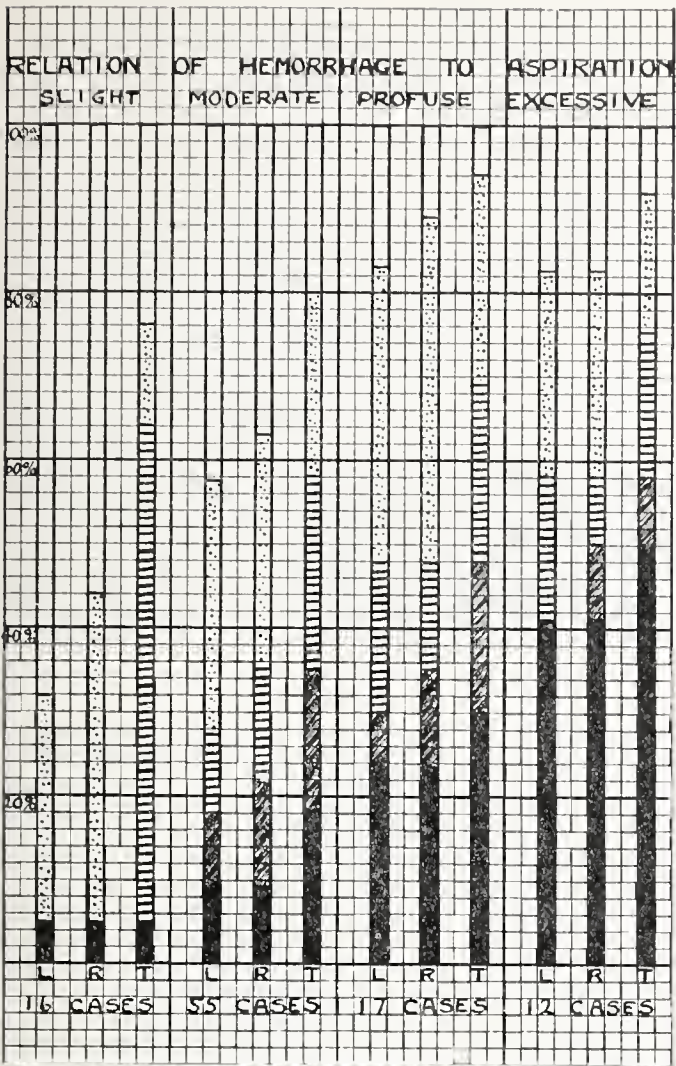


Chart 3-B.—Showing the relation of hemorrhage to the injection of the air passages.

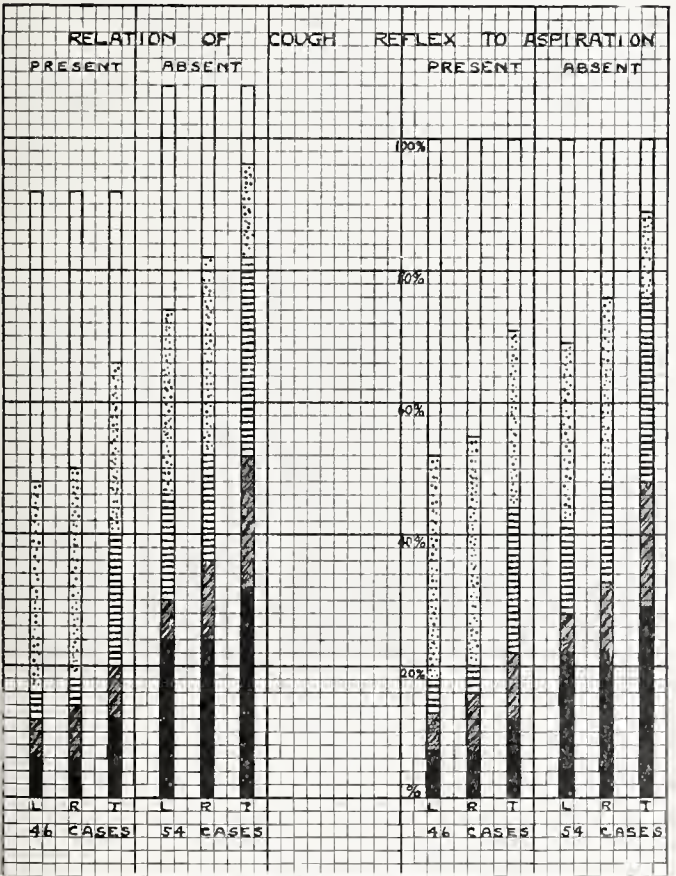


Chart 4.—Showing the relation of cough to aspiration.

or secretion. It is evident that suction has a place in tonsillectomy operations, but the belief that suction when constantly applied prevents the downward flow of pharyngeal contents seems to be erroneous.

OPERATING TIME

The influence of the operating time on aspiration complications is represented in Charts 2-A and 2-B. It would seem therefrom that the operating time had slight influence on the amount of aspiration. At least, the amount actually present within the air passages at the conclusion of the surgical procedures, whether long or short, was on the average the same.

HEMORRHAGE

A slight loss of blood is inevitable in tonsillectomy operations. According to the number of sponges required and the constancy of suction applied, the quantity lost was numerically estimated as follows: 1, slight; 2, moderate; 3, profuse; and 4, excessive.

Charts 3-A and 3-B show the relation of hemorrhage to the injection of the air passage.

COUGH AND VOMITING

Much has been written concerning the relation of the cough reflex to the incidence of aspiration under inhalation ether anesthesia. Experience has shown that the threshold of cough reflex is subject to considerable variation in different individuals. It would seem, however, that coughing does guard against aspiration of a large quantity of secretion and undoubtedly helps to clear the air passage by expelling that which finds its way downward. Chart 4 throws light on this.

Theoretically, a sudden regurgitation of the gastric contents into the pharynx immeasurably increases the danger of aspiration. It is well known, however, that the vomiting center is much earlier depressed by ether than is the cough reflex. Thus the action of the cough reflex doubtless often protects the air passages in patients where vomiting takes place. Of the thirty-seven patients who both vomited and coughed, seventeen had clean lungs, and ten had slight traces of blood.

POSTURE

This is the phase of the work on which our original classification was made. Six distinct postures of the head relative to the body were used. Five groups consisted of twenty patients each, and the sixth of ten patients. These postures are considered in turn.

Moderate Extension.—In this position the patient had no support of head other than the hands of the anesthetist who held it in moderate extension (Fig. 1).

Extreme Extension.—A small sand-bag was placed under the shoulders (Fig. 2). This caused extreme extension of head.

Trendelenburg at Twenty Degrees.—The foot of the operating table was elevated to form an angle of twenty degrees. A sand-bag supported the shoulders (Fig. 3).

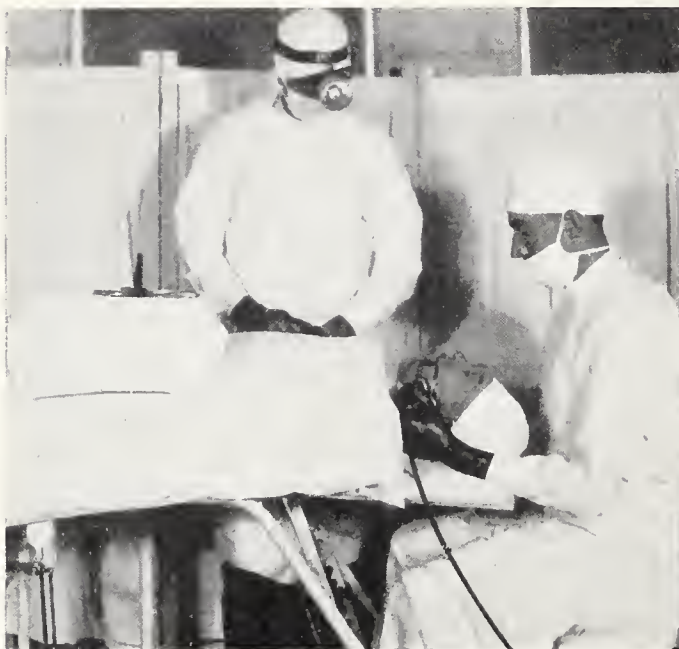


Fig. 1.—Moderate extension position.

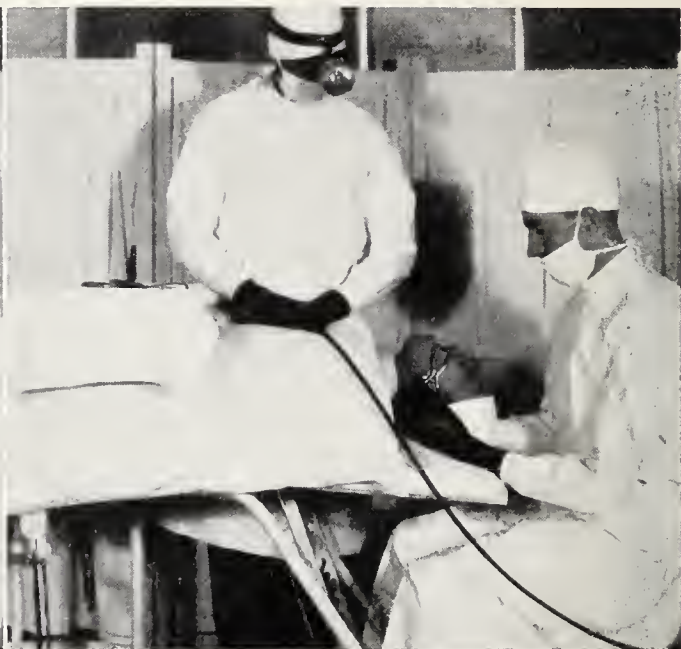


Fig. 2.—Extreme extension position.

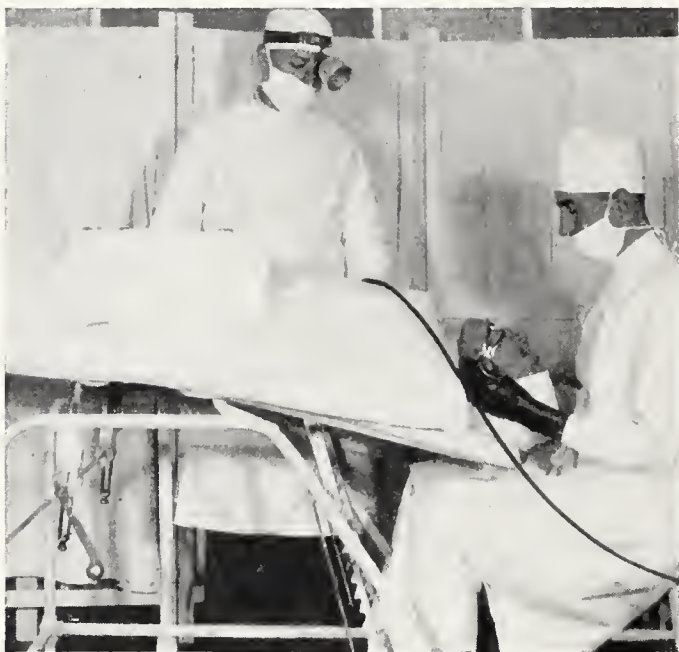


Fig. 3.—Twenty degree Trendelenburg position.

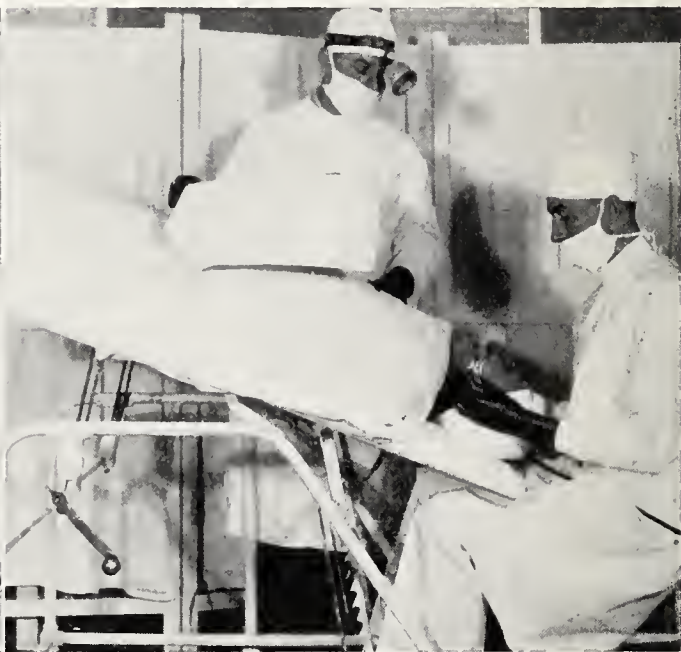


Fig. 4.—Forty-five degree Trendelenburg position.

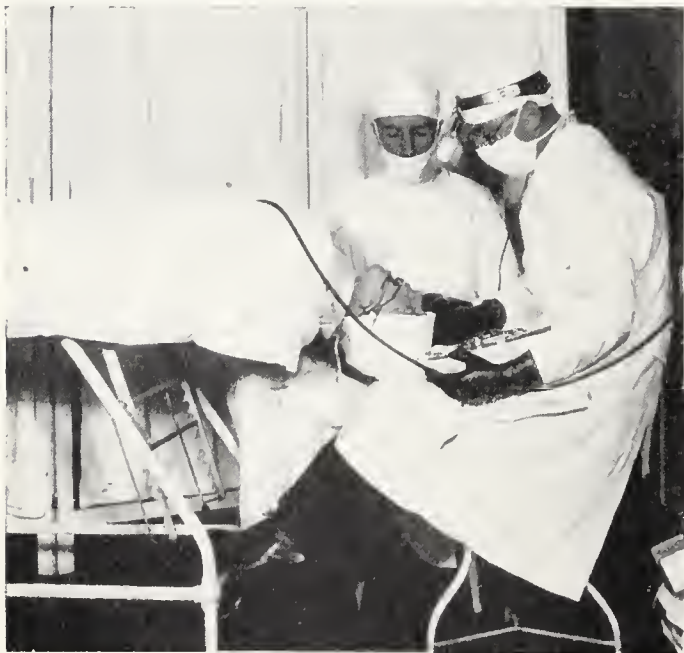


Fig. 5.—Rose position.



Fig. 6.—Bostonian position

Trendelenburg at Forty-Five Degrees.—This was like the preceding position except for extreme elevation of the foot of the table. It was necessary to strap the patient firmly to the table to prevent slipping toward the anesthetist (Fig. 4).

Rose Position.—The head of the patient was at the end of the operating table and the vertex supported by a pillow on the operator's lap. Thus the head was maintained on a much lower plane than the rest of the body (Fig. 5).

Bostonian.—As there were only ten patients in this group we did not include all the data in this study. However, it is none the less interesting from an academic viewpoint. For lack of a proper descriptive term we called the position shown in Fig. 6 the Bostonian. Practically all tonsillectomies in and about Boston are performed in this manner. After the patient is anesthetized he is strapped to a specially constructed chair for this purpose and brought into the operating room. Here he is placed before the surgeon in sitting posture. The trained nurse, who stands behind the patient, steadies the head and can readily turn or tip it in whichever direction indicated by the surgeon. Both the operator and the assistant have a free view of the field. Any advantages of position are apparently offset by the aspiration of blood and secretions which gravitate into the air passages in spite of care taken in the use of suction and sponges. The ten patients who were operated upon in this position had a uniformly



Chart 5.—Showing the relation of vomiting to aspiration.

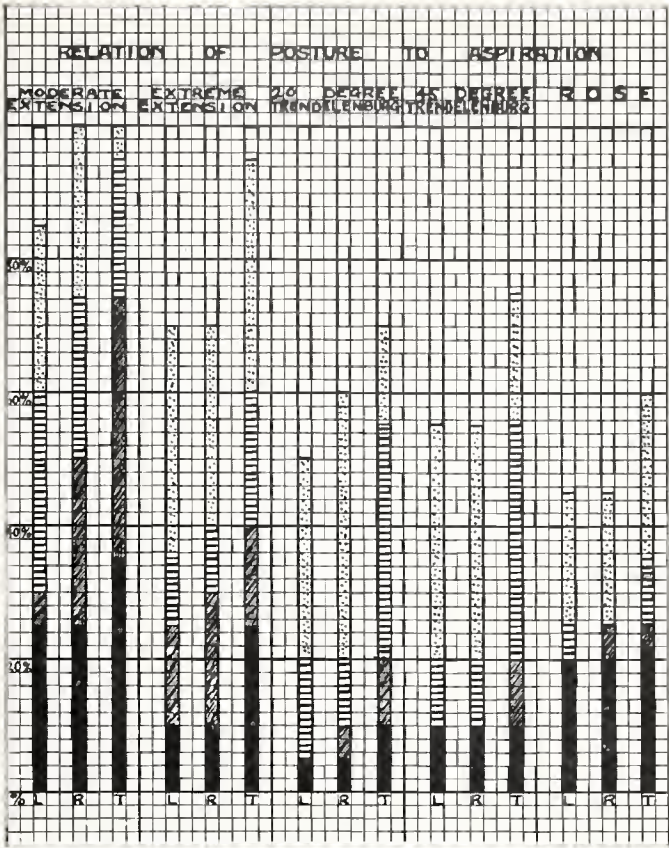


Chart 6.—Showing the relation of posture to aspiration.

large amount of blood (Chart 6). Aside from the climatic conditions and seasonable variations ascribed by Lord,¹⁸ the unusually high incidence of pulmonary complications that occur following tonsillectomy in the city of Boston may, to some degree, be attributed to the use of this position.

The comparative merits of the various positions employed are graphically represented in Chart 6.

Table 7 indicates analysis of twenty-one cases, including seven patients who were operated on in Bostonian posture, in which there was excessive aspiration.

The analysis of thirty-two cases in which there was no blood or barely a trace of it in the lower air passages of the patients is shown in Table 8. A remarkable feature of this table is that there is included not a single case from either the moderate extension or Bostonian group.

SUMMARY

1. Bronchoscopic study immediately following operation seems to offer one of the best methods of the estimation of the amount of inspired blood and secretions present after a tonsillectomy operation.
2. The Rose position affords the greatest protection against aspiration. The next in order are: the Trendelenburg, the extreme extension, and the moderate extension. The Bostonian posture gave the largest amount of aspiration.
3. Anesthesia should be as light as is compatible with careful surgical manipulation. The deeper the narcosis the greater will be the amount of aspirated material.
4. Suction and dry sponges as at present used during tonsillectomy are useful armamentaria, but

TABLE 1.—Moderate Extension

No.	Name	Age	Sex	History	Induction Time	Degree of Anesthesia	Operators	Time	Hemor-rhage	Suction Applied	Vomited	Coughed	Bronchoscopy Tra-Left Right chea
1	V. C.	13	M.	Repeated colds	25 M.	Shallow	F. H. L.	25 M.	2	Intermittent	Yes	No	2 3
2	O. L.	5	F.	Hypertrophic tonsils	5 M.	Shallow	C. C. H.	35 M.	3	Intermittent	Yes	Yes	3 3
3	S. P.	4	F.	Repeated colds	10 M.	Light surgical	J. W. H.	30 M.	2	Intermittent	No	No	2 3
4	B. R.	5	F.	Repeated colds	10 M.	Light surgical	T. W. K.	30 M.	1	Intermittent	No	No	1 2
5	I. L.	5	F.	O. M. S. A.	10 M.	Light surgical	W. C. C.	20 M.	2	Intermittent	No	No	1 2
6	I. L.	8	F.	Repeated colds	10 M.	Light surgical	W. C. C.	30 M.	2	Intermittent	No	No	2 3
7	E. P.	7	F.	"Colds"	10 M.	Light surgical	T. E. W.	28 M.	2	Intermittent	No	No	1 2
8	J. H.	8	F.	"Running nose"	10 M.	Light surgical	C. C. P.	34 M.	2	Intermittent	No	No	1 1
9	E. B.	9	M.	Septic tonsils	9 M.	Light surgical	J. W. H.	11 M.	4	Intermittent	No	No	4 4
10	W. C.	8	M.	Nasal obstruction	10 M.	Light surgical	J. W. H.	16 M.	4	Intermittent	No	No	2 2
11	R. C.	6	M.	Nasal obstruction	6 M.	Light surgical	C. S. I.	15 M.	2	Intermittent	No	No	1 2
12	H. B.	7	M.	Nasal obstruction	4 M.	Full surgical	C. S. I.	20 M.	2	Intermittent	No	No	3 4
13	R. R.	12	F.	Chronic tonsillitis	6 M.	Light surgical	C. S. I.	24 M.	2	Intermittent	No	No	2 3
14	E. A.	7	F.	Chronic tonsillitis	10 M.	Light surgical	R. T. H.	17 M.	2	Constant	Yes	Yes	3 3
15	R. O.	4	M.	Repeated colds	6 M.	Full surgical	C. B.	32 M.	2	Intermittent	No	No	4 4
16	T. H.	4	M.	Repeated colds	5 M.	Light surgical	M. E. C.	28 M.	2	Intermittent	No	No	4 4
17	A. A.	3	M.	Repeated colds	8 M.	Shallow	T. E. G.	22 M.	2	Constant	Yes	Yes	1 2
18	A. D.	5	F.	Repeated sore throat	8 M.	Light surgical	E. B. C.	20 M.	2	Constant	No	No	4 4
19	C. M.	9	M.	Nasal obst. O. M. C. A.	10 M.	Light surgical	J. H.	20 M.	3	Constant	No	Yes*	4 4
20	D. S.	5	M.	Chronic tonsillitis	14 M.	Struggling	M. E. C.	15 M.	3	Intermittent	No	Yes	1 2

Yes, at beginning.
M—Minutes.

1—Slight.
2—Moderate.

Hemorrhage

3—Profuse.
4—Excessive

Bronchoscopy

0—Clear.
1—Trace.
2—Slight.
3—Moderate.
4—Excessive.

TABLE 2.—Extreme Extension

No.	Name	Age	Sex	History	Induction Time	Degree of Anesthesia	Operators	Time	Hemor-rhage	Suction Applied	Vomited	Coughed	Bronchoscopy Tra-Left Right chea
21	A. M.	7	F.	Continuous colds	12 M.	Light surgical	W. G. H.	30 M.	1	Intermittent	No	Yes*	0 0
22	S. B.	8	F.	"Underweight"	10 M.	Shallow	H. J. H.	20 M.	2	Intermittent	Yes	Yes	1 1
23	W. R.	3	M.	Repeated colds	10 M.	Full surgical	M. A. D.	24 M.	2	Intermittent	No	No	1 2
24	J. C.	8	F.	Hypertrophic tonsils	8 M.	Full surgical	R. B. G.	19 M.	2	Intermittent	No	No	3 3
25	M. M.	8	F.	Repeated sore throats	8 M.	Full surgical	C. B. G.	27 M.	3	Constant	No	No	4 4
26	R. M.	10	M.	Impaired hearing	18 M.	Full surgical	L. L. H.	12 M.	2	Constant	No	No	3 3
27	V. C.	6	F.	Repeated sore throat	12 M.	Shallow	H. H. H.	28 M.	4	Constant	No	Yes	1 1
28	R. C.	7	M.	Nasal obstruction	17 M.	Light surgical	L. C. C.	16 M.	2	Constant	No	No	1 1
29	H. S.	7	M.	Repeated sore throat	20 M.	Full surgical	C. B.	21 M.	2	Constant	No	No	1 2
30	M. C.	14	F.	Hypertrophic tonsils	10 M.	Light surgical	S. K. B.	20 M.	2	Constant	Yes*	No	0 0
31	L. M.	11	F.	Chronic follicular tonsils	10 M.	Light surgical	E. B. C.	20 M.	2	Constant	No	No	1 1
32	D. G.	6	M.	"Slow mental development"	19 M.	Light surgical	H. H. L.	26 M.	2	Intermittent	No	No	3 3
33	M. F.	13	F.	Chronic naso-pharyngitis	7 M.	Shallow	T. E. G.	13 M.	2	Constant	Yes	Yes	0 0
34	C. Mc.	7	M.	Chronic hypertrophic tonsils	20 M.	Light surgical	S. K. B.	20 M.	2	Constant	No	No	0 0
35	R. O.	14	F.	Referred by school doctor	25 M.	Uneven (elec. trouble)	H. J. H.	20 M.	4	Intermittent	No	Yes†	4 4
36	R. N.	5	M.	Repeated sore throat	15 M.	Shallow	L. L. H.	20 M.	3	Constant	Yes	Yes	0 0
37	M. Mc.	5	F.	Septic tonsillitis	15 M.	Uneven	I. W. K.	20 M.	2	Constant	Yes	Yes	1 1
38	S. J.	12	M.	Repeated sore throat	15 M.	Light surgical	J. B. P.	17 M.	4	Constant	No	Yes*	1 1
39	M. W.	12	M.	Chronic tonsillitis, possible tuberculosis.	13 M.	Light surgical	G. K. K.	19 M.	3	Constant	No	Yes*	3 3
40	M. E.	6	F.	Enlarged tonsils. O. M. C. A.	12 M.	Light surgical	H. J. H.	12 M.	2	Constant	No	Yes*	0 0

Yes, at beginning.
† Yes, toward end.

TABLE 3.—Trendelenburg, Twenty Degrees

No.	Name	Age	Sex	History	Induction Time	Degree of Anesthesia	Operators	Time	Hemor- rhage	Suction Applied	Vomited	Coughed	Bronchoscopy Tra- Left Right chea
41	N. A.	6	F.	Sore throats	10 M.	Shallow	H. J. H.	12 M.	3	Intermittent	No	Yes	1 1
42	N. B.	5	F.	Enlarged tonsils, Sinusitis	7 M.	Light surgical	H. J. H.	21 M.	2	Intermittent	Yes†	No	3 3
43	C. B.	9	M.	Repeated sore throat	14 M.	Full surgical	H. H. H.	24 M.	4	Intermittent	No	No	4 4
44	C. C.	3	M.	Septic tonsils	6 M.	Full surgical	H. H. H.	16 M.	3	Intermittent	No	No	0 1
45	J. B.	6	M.	Nasal obstruction, Repeated colds	15 M.	Shallow	H. J. H.	12 M.	2	Intermittent	Yes†	Yes	0 0
46	A. M.	6	F.	Nasal obstruction, Repeated colds	15 M.	Struggling	J. J. J.	22 M.	3	Constant	Yes	Yes	1 1
47	A. A.	6	F.	Bilat. sinusitis, Septic tonsils	10 M.	Struggling	F. E. I.	15 M.	4	Constant	Yes	Yes	1 1
48	J. O.	3	F.	Repeated colds	10 M.	Struggling	R. T. H.	11 M.	2	Constant	No	No	1 1
49	O. P.	3	F.	Enlarged tonsils	10 M.	Full surgical	H. H. H.	20 M.	3	Constant	No	No	4 4
50	N. N.	5	F.	Repeated colds	15 M.	Light surgical	G. McC.	28 M.	1	Intermittent	No	No	0 0
51	E. H.	6	F.	Repeated colds	15 M.	Shallow	H. F. E.	28 M.	2	Intermittent	No	Yes	3 3
52	J. G.	5	F.	Repeated colds	15 M.	Light surgical	H. J. H.	16 M.	1	Intermittent	No	No	0 1
53	M. S.	8	M.	Nasal obstruction	10 M.	Struggling	H. J. H.	20 M.	1	Intermittent	Yes	Yes	0 0
54	J. C.	10	M.	Chronic tonsillitis	9 M.	Full surgical	J. B. O.	24 M.	1	Intermittent	Yes	Yes	0 0
55	F. M.	7	M.	Nasal obstruction, Cont. colds	7 M.	Struggling	J. D. L.	13 M.	1	Intermittent	No	No	1 1
56	E. P.	7	M.	Nasal obstruction	9 M.	Light surgical	J. B. O.	18 M.	1	Intermittent	No	No	1 1
57	H. R.	5	M.	Dysphagia	9 M.	Struggling	E. W. G.	18 M.	1	Intermittent	Yes	Yes	0 0
58	J. G.	5	M.	Repeated colds	9 M.	Shallow	E. W. G.	15 M.	1	Intermittent	Yes	Yes	0 0
59	W. M.	7	M.	Nasal obstruction	9 M.	Shallow	E. W. G.	19 M.	1	Intermittent	Yes	Yes	0 0
60	E. S.	13	M.	Nasal obstruction, Repeated sore throat.	11 M.	Shallow	H. J. H.	11 M.	2	Intermittent	Yes	Yes	0 1

† Yes, toward the end.

TABLE 4.—Trendelenburg, Forty-Five Degrees

No.	Name	Age	Sex	History	Induction Time	Degree of Anesthesia	Operators	Time	Hemor- rhage	Suction Applied	Vomited	Coughed	Bronchoscopy Tra- Left Right chea
61	J. C.	6	M.	Nasal obstruction	10 M.	Light surgical	H. J. H.	11 M.	2	Constant	Yes	Yes*	1 1
62	A. K.	4	M.	Repeated sore throat	5 M.	Shallow	E. W. G.	23 M.	3	Constant	Yes	Yes	1 1
63	A. M.	11	F.	Repeated quinsy	12 M.	Shallow	E. W. G.	20 M.	2	Constant	Yes	Yes	0 0
64	E. B.	13	F.	Repeated headache	8 M.	Shallow	E. W. G.	18 M.	3	Constant	Yes	Yes	0 0
65	W. H.	6	M.	Repeated sore throat	5 M.	Shallow	E. W. G.	15 M.	1	Constant	Yes	Yes	0 0
66	B. G.	10	F.	Repeated sore throat	11 M.	Light surgical	E. W. G.	12 M.	2	Constant	Yes	Yes*	1 1
67	B. C.	5	F.	Repeated colds	6 M.	Light surgical	H. J. H.	16 M.	2	Constant	No	No	0 0
68	L. M.	7	F.	Repeated colds	8 M.	Light surgical	M. A. D.	22 M.	2	Constant	No	No	0 0
69	M. G.	10	F.	Repeated sore throat	11 M.	Light surgical	H. H. H.	21 M.	2	Constant	Yes	No	1 1
70	S. T.	6	M.	Frequent epistaxis	5 M.	Light surgical	C. T. H.	28 M.	2	Constant	No	No	1 1
71	E. R.	9	F.	Suppurative otitis med. Pansinusitis	16 M.	Shallow	R. B. G.	25 M.	2	Constant	Yes	Yes	0 0
72	M. M.	10	F.	Repeated colds	15 M.	Full surgical	H. J. H.	15 M.	2	Constant	No	No	0 0
73	M. J.	7	M.	Nasal obstruction, Catarrhal otitis	10 M.	Shallow	H. J. H.	20 M.	2	Out of commis'n	Yes†	Yes†	0 1
74	S. H.	4	M.	Nasal obstruction	12 M.	Uneven	D. B. M.	11 M.	3	Intermittent	No	No	4 4
75	A. B.	12	F.	Repeated colds	10 M.	Uneven	P. L.	20 M.	3	Intermittent	Yes	Yes	2 2
76	A. C.	7	F.	Chronic tonsillitis	10 M.	Full surgical	D. B. M.	20 M.	1	Intermittent	No	No	0 0
77	I. V.	8	M.	Repeated colds	12 M.	Uneven	G. K.	18 M.	2	Intermittent	No	No	2 2
78	P. T.	3	F.	O. M. C. Enlarged tonsils	10 M.	Full surgical	G. K.	20 M.	1	Intermittent	No	No	2 2
79	R. F.	4	F.	Repeated colds	10 M.	Uneven	G. K.	20 M.	1	Intermittent	No	No	4 4
80	M. H.	6	M.	Repeated colds	5 M.	Full surgical	O. L. K.	21 M.	1	Intermittent	No	No	1 1

* Yes, at the beginning.

† Yes, toward the end.

‡ Yes, at the end.

TABLE 5.—*Rosc Position*

No.	Name	Age	Sex	History	Induction Time	Degree of Anesthesia	Operators	Time	Hemor- rhage	Suction Applied	Vomited	Coughed	Bronchoscopy Tra- chea
81	R. H.	9	F.	Enlarged tonsils	8 M.	Light surgical	H. T. H.	13 M.	2	Intermittent	No	No	0 0 0
82	G. Z.	12	M.	Enlarged tonsils	4 M.	Full surgical	F. M. B.	34 M.	2	Intermittent	No	No	4 4 4
83	W. F.	7	M.	Nasal obstruction. Impaired hearing	7 M.	Uneven	F. M. B.	42 M.	4§	Out of commis's'n	No	No	4 4 4
84	B. D.	7	M.	Nasal obstruction	6 M.	Full surgical	F. M. B.	19 M.	3	Intermittent	No	No	2 2 3
85	V. S.	11	M.	Repeated colds. Nasal obstruction	8 M.	Shallow	F. M. B.	11 M.	2	Intermittent	No	Yes†	1 1 2
86	C. P.	4	F.	Bill. suppurative. Otitis M. chronic	3 M.	Shallow	C. T. H.	27 M.	2	Constant	Yes†	Yes	0 0 0
87	E. P.	11	F.	Chronic tonsillitis	12 M.	Light surgical	C. T. H.	20 M.	2	Constant	No	No	0 0 0
88	S. R.	6	F.	Nasal obstruction	8 M.	Full surgical	C. T. H.	23 M.	2	Intermittent	No	No	0 0 1
89	G. R.	8	F.	Referred by school nurse	5 M.	Struggling	T. H.	22 M.	2	Intermittent	Yes	Yes	0 0 0
90	R. P.	14	F.	Chronic tonsillitis	10 M.	Shallow	T. H.	28 M.	2	Intermittent	Yes	Yes	0 0 1
91	H. J.	10	M.	Neuritis of knees	10 M.	Light surgical	T. H.	25 M.	2	Constant	No	Yes†	0 0 0
92	Y. N.	6	F.	Nasal obstruction. Repeated sore throat.	7 M.	Light surgical	J. J. J.	21 M.	2	Constant	No	No	0 0 0
93	C. R.	11	F.	Repeated head colds. Tonsillitis	7 M.	Shallow	J. J. J.	23 M.	4	Constant	No	Yes†	0 0 1
94	R. K.	5	M.	Enlarged tonsils	13 M.	Uneven	G. L. C.	25 M.	2	Constant	Yes	Yes†	4 4 4
95	A. P.	6	M.	Peritonsillar abscess	13 M.	Full surgical	F. E. I.	27 M.	4	Constant	No	No	0 0 0
96	G. R.	12	F.	Bill. suppurative. Chronic otitis media	10 M.	Full surgical	O. L. K.	20 M.	4	Constant	No	No	4 4 4
97	O. S.	9	M.	Chronic foll. tonsil	13 M.	Uneven	H. J. H.	20 M.	2	Intermittent	No	Yes	1 1 2
98	E. A.	6	M.	Nasal obstruction	17 M.	Shallow	W. M.	21 M.	2	Intermittent	Yes	Yes	0 0 1
99	L. T.	11	F.	Repeated colds. Impaired hearing	15 M.	Light surgical	E. S. M.	27 M.	3	Intermittent	Yes	Yes	1 1 1
100	A. H.	5	F.	Enlarged tonsils	10 M.	Shallow	O. L. K.	12 M.	3	Out of commis's'n	No	Yes	1 1 1

† Yes, toward the end.
‡ Yes, at the end.
§ Sutures taken.

TABLE 6.—*Bostonian Position*

No.	Name	Age	Sex	History	Induction Time	Degree of Anesthesia	Operators	Time	Hemor- rhage	Suction Applied	Vomited	Coughed	Bronchoscopy Tra- chea
101	R. P.	5	F.	Otitis med. Suppurat. chronic	8 M.	Light surgical	R. I. H.	20 M.	1	Constant	No	Yes†	4 4 4
102	H. M.	8	F.	Nasal obstruction	10 M.	Full surgical	G. L. C.	26 M.	2	Intermittent	No	No	4 4 4
103	L. R.	6	F.	Repeated sore throat	9 M.	Full surgical	R. B. G.	18 M.	2	Intermittent	No	No	4 4 4
104	A. R.	4	M.	Repeated sore throat	7 M.	Full surgical	R. I. H.	15 M.	2	Intermittent	No	No	4 4 4
105	E. C.	7	F.	Nasal obstruction	6 M.	Light surgical	R. I. H.	18 M.	2	Constant	No	No	2 2 3
106	C. C.	10	M.	Nasal obstruction	18 M.	Full surgical	R. E. G.	22 M.	2	Constant	No	No	4 4 4
107	J. M.	7	M.	Nasal obstruction	15 M.	Shallow	G. L. C.	18 M.	2	Constant	Yes	Yes	2 2 3
108	F. S.	8	F.	Nasal obstruction	13 M.	Light surgical	F. E. I.	24 M.	2	Intermittent	No	No	2 2 3
109	F. H.	11	M.	Otitis media. Suppurative chronic	7 M.	Light surgical	H. J. H.	17 M.	2	Constant	No	No	4 4 4
110	R. S.	6	M.	Nasal obstruction	15 M.	Light surgical	E. K.	25 M.	1	Intermittent	No	No	4 4 4

† Yes, toward the end.

TABLE 7.—Analysis of Excessively Aspirated Patients

Case	Name	Age	Sex	Positions	Induction	Time	Anesthesia	Operators	Time	Hemor- rhage	Suction Applied	Vomited	Coughed	Bronchoscopy L R T
9	E. B.	9	M.	Moderate extension	9 M.	11 M.	Light surgical	J. W. H.	11 M.	4	Intermittent	No	No	4 4 4
15	R. Q.	4	M.	Moderate extension	6 M.	32 M.	Full surgical	C. B.	32 M.	2	Constant	No	No	4 4 4
16	T. H.	4	M.	Moderate extension	5 M.	28 M.	Light surgical	E. B. C.	28 M.	2	Intermittent	No	No	4 4 4
18	A. D.	5	F.	Moderate extension	4 M.	20 M.	Light surgical	E. B. C.	20 M.	2	Constant	No	No	4 4 4
19	C. M.	9	M.	Moderate extension	10 M.	20 M.	Light surgical	J. H.	20 M.	3	Constant	No	Yes*	4 4 4
35	R. O.	14	F.	Extreme extension	25 M.	20 M.	Uneven. Out of commis's'n	H. J. H.	20 M.	4	Intermittent	No	Yes†	4 4 4
43	C. B.	9	M.	Trendelenburg 20 degree	14 M.	24 M.	Full surgical	H. H. H.	24 M.	4	Intermittent	No	No	4 4 4
49	O. P.	3	F.	Trendelenburg 20 degree	10 M.	24 M.	Full surgical	H. H. H.	20 M.	3	Constant	No	No	4 4 4
74	S. H.	4	M.	Trendelenburg 45 degree	12 M.	11 M.	Uneven	D. B. M.	11 M.	3	Intermittent	No	No	4 4 4
79	R. F.	4	F.	Trendelenburg 45 degree	10 M.	34 M.	Uneven	D. B. M.	34 M.	1	Intermittent	No	No	4 4 4
82	G. Z.	12	M.	Rose	4 M.	34 M.	Full surgical	F. M. B.	34 M.	2	Intermittent	No	No	4 4 4
83	W. F.	7	M.	Rose	7 M.	42 M.	Uneven	F. M. B.	42 M.	4§	Out of commis's'n	No	Yes†	4 4 4
94	R. K.	5	M.	Rose	13 M.	25 M.	Uneven	G. L. C.	25 M.	2	Constant	Yes	Yes	4 4 4
96	G. R.	12	F.	Rose	10 M.	20 M.	Full surgical	O. L. K.	20 M.	4	Constant	No	No	4 4 4
101	R. P.	5	F.	Bostonian	8 M.	20 M.	Light surgical	R. I. H.	20 M.	1	Constant	No	Yes†	4 4 4
102	H. M.	8	F.	Bostonian	10 M.	26 M.	Full surgical	G. L. C.	26 M.	2	Intermittent	No	No	4 4 4
103	L. R.	6	F.	Bostonian	9 M.	18 M.	Full surgical	R. B. G.	18 M.	2	Intermittent	No	No	4 4 4
104	A. R.	4	M.	Bostonian	7 M.	15 M.	Full surgical	R. I. H.	15 M.	2	Intermittent	No	No	4 4 4
106	C. C.	10	M.	Bostonian	18 M.	22 M.	Full surgical	R. E. G.	22 M.	2	Constant	No	No	4 4 4
109	F. H.	11	M.	Bostonian	7 M.	17 M.	Light surgical	H. J. H.	17 M.	2	Constant	No	No	4 4 4
110	R. S.	6	M.	Bostonian	15 M.	25 M.	Light surgical	E. K.	25 M.	1	Intermittent	No	No	4 4 4

* Yes, at the beginning.
† Yes, toward the end.
§ Sutures taken.

TABLE 8.—Analysis of Non- and Slightly Aspirated Patients

Case	Name	Age	Sex	Positions	Induction	Time	Anesthesia	Operators	Time	Hemor- rhage	Suction Applied	Vomited	Coughed	Bronchoscopy L R T
21	A. M.	7	F.	Extreme extension	12 M.	30 M.	Light Surgical	W. G. H.	30 M.	1	Intermittent	No	Yes	0 0 1
30	M. C.	14	F.	Extreme extension	10 M.	20 M.	Light Surgical	S. K. B.	20 M.	2	Constant	Yes	No	0 0 0
33	M. F.	13	F.	Extreme extension	7 M.	13 M.	Shallow	T. E. G.	13 M.	2	Constant	Yes	No	0 0 1
34	C. M.	7	M.	Extreme extension	20 M.	20 M.	Light Surgical	S. K. B.	20 M.	2	Constant	No	No	0 0 1
36	R. N.	5	M.	Extreme extension	15 M.	20 M.	Shallow	L. L. H.	20 M.	3	Constant	Yes	Yes	0 0 1
40	M. E.	6	F.	Extreme extension	12 M.	12 M.	Light Surgical	H. J. H.	12 M.	2	Constant	No	Yes	0 0 1
45	J. B.	6	M.	Trendelenburg 20 degree	16 M.	12 M.	Shallow	H. J. H.	12 M.	2	Intermittent	Yes†	Yes	0 0 0
50	N. N.	5	F.	Trendelenburg 20 degree	15 M.	28 M.	Light Surgical	G. McC.	28 M.	1	Intermittent	No	No	0 0 1
53	M. S.	8	M.	Trendelenburg 20 degree	10 M.	20 M.	Struggling	H. J. H.	20 M.	1	Intermittent	Yes	Yes	0 0 0
54	J. C.	10	M.	Trendelenburg 20 degree	9 M.	24 M.	Struggling	J. B. O.	24 M.	1	Intermittent	Yes	Yes	0 0 0
57	H. R.	5	M.	Trendelenburg 20 degree	9 M.	18 M.	Struggling	E. W. G.	18 M.	1	Intermittent	Yes	Yes	0 0 0
58	J. G.	5	M.	Trendelenburg 20 degree	9 M.	19 M.	Shallow	E. W. G.	19 M.	1	Intermittent	Yes	Yes	0 0 0
59	W. M.	7	M.	Trendelenburg 20 degree	9 M.	19 M.	Shallow	E. W. G.	19 M.	1	Intermittent	Yes	Yes	0 0 0
63	A. M.	11	F.	Trendelenburg 45 degree	12 M.	20 M.	Shallow	E. W. G.	20 M.	2	Constant	Yes	Yes	0 0 0
64	E. B.	13	F.	Trendelenburg 45 degree	8 M.	18 M.	Shallow	E. W. G.	18 M.	3	Constant	Yes	Yes	0 0 0
65	W. H.	6	M.	Trendelenburg 45 degree	5 M.	15 M.	Shallow	E. W. G.	15 M.	1	Constant	Yes	Yes	0 0 0
67	B. C.	5	F.	Trendelenburg 45 degree	6 M.	16 M.	Light Surgical	H. J. H.	16 M.	2	Constant	No	No	0 0 0
68	L. M.	7	F.	Trendelenburg 45 degree	8 M.	22 M.	Light Surgical	M. A. O.	22 M.	2	Constant	No	No	0 0 1
71	E. R.	9	F.	Trendelenburg 45 degree	16 M.	25 M.	Shallow	R. B. G.	25 M.	2	Constant	Yes	Yes	0 0 0
72	M. M.	10	F.	Trendelenburg 45 degree	15 M.	15 M.	Full surgical	H. J. H.	15 M.	2	Constant	No	No	0 0 1
73	M. J.	7	M.	Trendelenburg 45 degree	10 M.	20 M.	Shallow	H. J. H.	20 M.	2	Out of commis's'n	Yes†	Yes†	0 0 1
81	R. H.	9	F.	Rose	8 M.	13 M.	Light Surgical	H. J. H.	13 M.	2	Intermittent	No	No	0 0 0
86	C. P.	4	F.	Rose	3 M.	27 M.	Shallow	C. T. H.	27 M.	2	Constant	Yes†	Yes	0 0 0
87	E. P.	11	F.	Rose	12 M.	20 M.	Light Surgical	C. T. H.	20 M.	2	Constant	No	No	0 0 0
88	S. R.	6	F.	Rose	8 M.	23 M.	Full surgical	C. T. H.	23 M.	2	Intermittent	No	Yes	0 0 1
89	G. R.	8	F.	Rose	5 M.	22 M.	Struggling	T. H.	22 M.	2	Intermittent	Yes	Yes	0 0 0
90	R. P.	14	F.	Rose	10 M.	28 M.	Shallow	T. H.	28 M.	2	Intermittent	Yes	Yes	0 0 1
91	H. J.	10	M.	Rose	7 M.	25 M.	Light Surgical	T. H.	25 M.	2	Constant	No	Yes†	0 0 0
92	Y. N.	6	F.	Rose	7 M.	23 M.	Light Surgical	J. J. J.	23 M.	2	Constant	No	Yes†	0 0 0
93	C. R.	11	F.	Rose	7 M.	23 M.	Shallow	J. J. J.	23 M.	4	Constant	No	Yes†	0 0 1
95	A. P.	6	M.	Rose	13 M.	27 M.	Full surgical	F. E. I.	27 M.	4	Constant	No	No	0 0 0
98	E. A.	6	M.	Rose	17 M.	21 M.	Shallow	W. M.	21 M.	2	Intermittent	Yes	Yes	0 0 1

† Yes, toward the end
† Yes, at the end.

they do not assure of absolute protection against aspiration.

5. With a proper combination of the methods mentioned in these studies, aspiration hazards may be markedly reduced.

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RESUSCITATION OF THE NEW-BORN*

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THERE is no phase of obstetric practice which is more important and yet gets so little attention as does the resuscitation of the new-born child.

Fortunately most infants cry spontaneously upon being born and the circulatory changes take place without incident, but in many instances there is delay in the establishment of one or both functions and it becomes necessary to use artificial means in the attempt to preserve life.

It is not my purpose to introduce a new means of resuscitation but to recall the importance of the subject, to point out certain errors in the practice and to suggest those methods which have the most merit.

Since the birth of a living and healthy child into the world is the sole purpose of pregnancy and labor, there is necessarily a failure unless this purpose has been accomplished. To those who are called upon to attend the mother through this function, comes the responsibility of sustaining the new life; skillfully, patiently and gently using all means available.

BASIC PRINCIPLES IN TREATMENT OF ASPHYXIA NEONATORUM

There are two important principles in the treatment of the asphyxiated new-born. First, that the respiratory passages are free from blood, mucus and amniotic fluid. Second, that the body temperature be not allowed to fall below normal. In the former instance all that is usually necessary is to suspend the child by the feet, allowing the head to rest upon the table. The mouth and throat are then gently wiped free of mucus by use of two folds of gauze over the little finger, or the throat is massaged upward gently. As a rule these measures are sufficient to clear the lungs. Where there has been deep aspiration of amniotic fluid, it becomes necessary to use gentle artificial respiration during which the child is still suspended. This almost always frees the lungs of fluid. Where these maneuvers have failed to give results it may become advisable to aspirate the mucus by use of a bulb aspirator or the tracheal catheter.

During the time necessary to carry out such manipulations there has been rapid evaporation from the wet skin of the child and a rapid fall in the temperature. To prevent this fall from progressing to a dangerous point, the use of a warm water bath is the most successful.

The water bath has two distinct functions: to maintain body temperature, as already mentioned, and to stimulate respiration and circulation. If the bath is tepid it has no stimulating effect; to obtain that result, it must therefore be warm to the hand. By the addition of hot water, which raises the temperature more rapidly, the stimulat-

* Chairman's address, Obstetrics and Gynecology Section of the California Medical Association at the fifty-ninth annual session, Del Monte, April 28 to May 1, 1930.

ing effect becomes evident: the skin becomes pink, the pulse stronger, and respirations often become strong and regular.

It is not advisable to keep the child in a water bath too long, so warm blankets should always be available, and the child should be well covered as soon as regular respirations have been established, even if there has been no cry.

In instances where success has not been attained by these measures it becomes necessary to further stimulate. Among the older means are the use of cold tubs and spanking. Both of these means while very efficient may become equally dangerous. The cold bath should be iced and if used at all should be only as an instantaneous plunge, the child being immediately returned to the warm water. It is much better to lift the body of the child out of the warm water and to dash a few drops of the cold onto the chest. In several instances that have come to my knowledge I feel sure that the life of the baby has been lost for the sole reason that the shock of immersion into the cold water was sufficient to stop the feeble attempts at respiration.

In spanking, the tips of the fingers only should come in sharp contact with the buttocks. If the full hand is used over the same area the force of the blow may be sufficient to injure the spine, and if the blow is directed over the lumbar or thoracic region very serious damage may result. Many autopsies that show a ruptured liver or kidneys can be traced directly to this cause. Unless one understands this maneuver, one had better not use it; it is very simple and may be efficacious, and yet it is dangerous.

Artificial respiration is necessary to sustain life in the absence of spontaneous respirations. By this method the heart may be kept beating for long periods. The old jack-knife maneuver seems to have stood the test of time better than any other, but this also has its dangers. Chief of these is that too vigorous compression may injure the lungs or abdominal viscera, most often rupture the liver. This procedure must be executed gently but with sufficient force to compress the lungs, and the extension must be sufficient to inflate them but not to the degree of over-extension, which causes abnormal tension.

A very excellent means of stimulation is the rubbing of the skin, especially that of the thorax, with a dry towel spread over the loosely extended fingers, the tips only coming in contact with the infant. This may be quite vigorous and still do no harm if the fingers are not stiffened and heavy pressure is not made. Many babies respond to such treatment when other means have failed.

Inflating the lungs by blowing into the infant's mouth must also be very gently carried out because it is very easy, by slightly increased pressure, to rupture the alveoli of the lungs and to produce fatal trauma. In one such case at autopsy the pleura was found elevated into numerous small blisters. The rupture of the alveoli permitted the air to penetrate the lung tissue and separate the pleura.

The use of oxygen, unless perfectly controlled, also carries this same danger, even in the event that a catheter is used. An added danger here is that the catheter may be passed through the mouth or nose, into the esophagus. In two instances this was fatal to infants because, without proper control, the oxygen was turned on with force enough to inflate the stomach and intestinal tract and caused rupture. In one of these cases the pressure was so strong that the gas escaped from the anus.

Perhaps the best method of inflating the lungs is by use of one of a number of instruments by means of which a mixture of 5 per cent carbon dioxid gas with 95 per cent oxygen is passed into the lungs under complete control. It passes through a large, soft rubber bag in which the gas accumulates and is allowed to enter the air passages gently and at intervals, simulating the regular respiratory rate. The most important factor in this method is the presence of the carbon dioxid which acts as a strong respiratory stimulant. I feel certain that this can save more babies than any other method.

The use of Alpha lobelin seems to have definite merit. It is injected intramuscularly and often causes regular respirations to begin. Even though it is not always effective, the drug should certainly be present in every delivery room.

When the problem is one of cardiac failure there are fewer treatments available. The gentle massage of the heart through the chest wall often brings about improvement. As a last resort adrenalin injected into the heart muscle itself may start contractions which have been absent or imperceptible since birth. When it works, it is very dramatic and is life-saving.

The methods and dangers that have been discussed are familiar to all of you, but it is the purpose of this paper to recall them to mind and to call your attention again to the fact that the most important factor of all in the resuscitation of the new-born is gentleness and that next to it comes patience. Many times when we feel discouraged after long effort and are tempted to admit defeat, we begin to get results. How often have you seen one person give up the problem as hopeless and have then seen another take up the work and succeed. My big lesson came one day when I saw an experienced man pronounce a child dead and then saw two nurses resuscitate it.

We have often seen physicians struggle valiantly to preserve the spark of life in an old patient who is dying of an incurable disease and we see others give up after a few moments of half-hearted effort when the patient is a new-born child; a young life with untold possibilities ahead of it.

To repeat, it is the purpose of our profession to conserve life; to assist into the world living and healthy children. Where the struggle has been the hardest and where success has been the longest deferred, there we find our greatest reward.

490 Post Street.

EXTRACT OF ADRENAL CORTEX SUBSTANCE*

REPORT OF ITS PREPARATION AND USE—WITH
SOME CLINICAL NOTES

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AND

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*DISCUSSION by Harold Brunn, M. D., San Francisco; J. W. Cox, M. D., New York City; Karl F. Meyer, Ph. D., San Francisco; James Percy, M. D., Los Angeles.

FOR many years the writers have been carrying on some chemical and biologic studies, with special reference to the action of certain extracts and substances on pathologic disturbances such as angina, high blood pressure, vascular diseases, and malignancies.

The studies on angina pectoris in the year 1927 arrived at a stage where it was possible to publish some results and findings in the form of a book entitled "Angina Pectoris," from the press of Tulane University. A great amount of time, material and investigation were required to gather the material which was used in the chapter on the anatomy of the sympathetic nervous system. The studies on the function of the sympathetic nervous system had a definite relation to our investigations of certain malignancy problems, because of viewpoints which we held concerning the innervation of internal secretory glands by the sympathetic nervous system. For we have held that the endocrine system furnished an active principle, or hormone, which governs or stabilizes tissue growth.

We appreciated from the very beginning that the studies which we had in mind would entail a very large amount of laboratory and scientific investigation, as well as of clinical observation, and that a considerable period of time would be required before any definite findings or worthwhile facts could be brought together which could be of much practical use.

The large number of extensive studies which had been made in these subjects in the past by prominent members of the medical profession made this possibility the more apparent.

For ourselves, we felt that some of the theories having to do with the causes, alleviation and eradication of cancer could not be accepted as fundamentally sound. Nevertheless, an effort was made to study all theories that had been propounded, and all scientific experiments that had been carried out, as well as all results that had been developed as a sequence of the experimentation and scientific research of recent years. Some of the work done by other investigators will be briefly commented upon in this paper.

* From the Medical Department of the Southern Pacific Railroad General Hospital, San Francisco.

* Read at the twenty-eighth annual session of the Pacific Association of Railway Surgeons, August 23, 1930, at Coronado, San Diego, Calif.

* Discussions of Ernest Charles Dalton, M. D., St. Helens, Oregon; F. C. Renfrew, M. D., Long Beach, and William A. Dashiell, M. D., Hollywood, will appear in the reprints of this paper.

INITIAL VIEWPOINTS

In our own investigations we started out with the thought that all malignancies of the human body were constitutional, and that the causes of malignancies would have to be sought for in systemic structures and functions. We held to the viewpoint that the human body is made up of millions of cells, each of which has a characteristic function to perform, and if for any cause any of these cells should be voided of any definite function that it would be only by a definite control that they could be kept within their normal functions and activities. Under such conditions, as we saw it, one of two conditions might arise:

First, cells with no definite function, and without a controlling element, might become what we would then term "anarchistic cells," growing and multiplying at a rapid rate without proper relationships to other tissues and cells of the human body. Such cells could then be looked upon as having somewhat of a parasitic nature.

Second, if cells of the human body, during their functional activity, received an insult by irritation, trauma or otherwise, such cells would also begin to multiply and give expression to themselves in an anarchistic way unless they were held in abeyance by forces as yet not known.

In both cases, it seemed to us, that a controlling element, that is, a sort of governor or stabilizer, would be necessary if a normal condition in the human body was to exist in these particular individuals.

We were of the opinion that nature has provided somewhere in the human body a definite stabilizer of tissue growth in the form of an active principle, or hormone.

With the theory as above outlined in mind we continued our studies, searching hither and thither among the body structures and tissues for this stabilizer of tissue growth. In these many experimental investigations we checked and rechecked on anything and everything that might give us a lead in the right direction. Drugs of all kinds were experimented with, likewise proteins of every type, and serums and extracts of all kinds were made and used. The endocrine system was made a subject of special study, and extracts, by a process which had gradually been developed by us, were made from all portions of the different internal secretory glands. In some instances extracts were made from portions of the glands, and again from combinations of these different extracts, and were used in our work.

EXTRACT OF THE SUPRARENAL CORTEX

In our final experiments we felt we were rewarded in being able to make what we believe may be called a potent extract, and which is made from a portion of the cortical substance of the suprarenal glands. This suprarenal cortex extract, we believe, contains the active principle, or hormone, which is the stabilizer of tissue growth, or to put it in other words, which is a function governor of growth in this human engine of ours.

Through some of our experiments we came to the belief that extracts made from the tissues other than the suprarenal gland gave a slight lytic reaction on tumor growths. This action led us to believe that probably such extracts had an inhibitory effect upon cellular growth where the normal growth for any reason had been disturbed. Nevertheless, these reactions were weak and insignificant, and consequently, for the time being, the experiments with such extracts were put aside for future consideration.

CLINICAL STUDIES AND EXPERIMENTS

As we continued our studies we came to the conclusion that human malignancies would have to be dealt with in a somewhat different way than animal malignancies. We felt that if we were to make any real progress in proving the worth or non-worth of the theories and extracts which had been developed, it would be best done if it would be possible to give the extract, or extracts, which had been elaborated, to human individuals who were suffering from malignant new-growths; and who had been diagnosed as inoperable, and beyond the hope of x-ray, radium or other known and accepted usages. We therefore determined, if possible, to carry on our subsequent investigations as much as possible in the form of clinical studies.

ACTION OF THE EXTRACT OF THE SUPRARENAL CORTEX

When used on human beings with malignant new-growths, we found that the suprarenal cortex extract, when injected in graduated doses subcutaneously at definite intervals, caused marked necrosis in the areas of malignancy, followed in a short period of time by sloughing where such a process was anatomically possible. In patients where such a process was anatomically observable, it was found that the tumor mass usually became necrotic and liquefied. Incidentally, but of importance to many patients, it was also noticed that the pain was often alleviated; or disappeared entirely a short time after the first injection.

On patients who died and upon whom autopsies were done, it was noted that metastatic areas of involvement showed evidences of necrosis, although the areas in some instances were as small as the point of a pencil. Examination under the microscope of such presumably necrotic tissues showed that the malignant tissue had broken down and degenerated and had become necrotic.

From the clinical standpoint of alleviation of symptoms, the patients upon whom these experimental injections had been used stated that they felt better, slept better, and ate better. A striking increase in weight after a short period of injections was also noted in many patients.

PRELIMINARY REPORT OF OUR STUDIES, AS MADE TO SAN FRANCISCO PATHOLOGICAL SOCIETY IN JANUARY, 1930

The preliminary studies and experiments above outlined were quietly carried on for several years up to January 6, 1930, at which time we were

persuaded by several of our intimate friends of the medical profession to make a preliminary report concerning our studies and experiments to the San Francisco Pathological Society. At that meeting a short presentation was made of the investigations which had been carried on during the last several years, a few patients to illustrate some clinical phases of our work being shown at the same time. Several anatomical specimens were also presented at that time in illustration of pathological aspects of the work, these being discussed by Dr. A. M. Moody.

The preliminary report on our studies and experiments which was made at that meeting of the San Francisco Pathological Society on January 6 last, caused much discussion among members of the medical profession, and this in turn, because of the interest which the lay public had in recent years taken in cancer as a public health problem, caused a number of newspapers, both in California and elsewhere, to give an unusual and unexpected publicity to the experiments which were there reported. This publicity in lay newspapers and publications was no doubt the cause of hundreds of unfortunate sufferers of this dreaded disease being brought to our doors for help. The result has been that, up to the present time, we have had under our care in the clinics which were established by us in California some two thousand patients, all presumably suffering from some form of malignancy. More than double that number were turned away because they did not bring proper credentials from their personal physicians, making them eligible to be admitted to our clinics. In this connection it is important to emphasize that we have never made any claim for a cure for cancer, but we have stated definitely to all that we were conducting research studies on malignancies of all types, with a suprarenal extract prepared according to our method.

PREMISES FOR OUR STUDIES

It may be well to restate the premises of our studies which were outlined in the March issue of CALIFORNIA AND WESTERN MEDICINE, pages 209-210. These premises are:

1. Nature has provided certain controls, or "governors," in our physiological make-up, among which is a control or stabilizer of tissue growth.

2. This control, or stabilizer of the development and multiplication of tissue cells is of the nature of an active principle, or hormone.

3. This hormone is produced by certain cellular elements of the body which are found to exist in considerable amounts in the cortex of the suprarenal glands.

4. This hormone, or active principle, may be produced in other parts of the body yet to be determined. We have found that extracts made from other tissues have what we think is probably an inhibitory effect on cellular growth where normal cellular growth has been disturbed.

5. This hormone, or active principle, is found in a highly potent form with unmistakable effect

upon malignant cellular growth in extracts made from a portion of the cortex of the suprarenal glands.

6. This extract containing the active principle has a destructive effect upon malignant tissue, causing its necrosis and death, without destruction of normal tissues.

REQUIREMENTS FOR ADMISSION INTO CLINICS

It may be proper at this point to make mention of the fact that at the clinics which were established in the cities of San Francisco, Los Angeles, and Long Beach, no fees were accepted by us for the professional services rendered by us in injecting the extract, or for the extract itself. Each patient was told that our work was in the nature of experimentation and that no promises as to any results could be made. Also, that in the event of death, it was desired that an autopsy should be permitted. In order to avoid every possible criticism the following requirements were laid down for the study of the effect of the extract on patients to be admitted to our clinics:

1. That each patient must have two letters addressed to us from attending physicians in which letters the physician or physicians clearly stated the diagnosis and the fact that the patient's malignant condition was presumably inoperable and beyond the hope of improvement through x-ray, radium, or other methods.

2. That each patient must present a letter from the attending physician in which he stated he referred the patient to us for the administration of the extract.

3. That each patient must present a biopsy report, together with the pathological tissue slide; or x-ray diagnosis or x-ray plates in a patient where biopsy has been found impracticable, such as a malignancy of the stomach.

4. A résumé history of the case history from the physician who had previous charge of the treatment or from the hospital in which the patient had been treated.

5. The written consent of the nearest relative for an autopsy in the case of death.

With the above facts in our possession and with the clear understanding between the patients and ourselves on these matters, the extract injections were given. In a general way the other procedures which have been developed and which it was aimed to carry out are as follows:

Notes and physical examination were made of each patient by the clinic doctor to whom such patient had been assigned. Microscopic photographs were made of the pathologic slides, and these were attached to the history together with the pathologic reports on the tissues, as made by our own pathologist. Colored lantern slides, together with actual photographs, were made before the first injection in every patient where it was anatomically possible. Subsequent lantern slides and photographs were made at stated intervals for comparison. Microscopical examinations were made of pathologic tissues as indications arose.

It may also be stated that patients receiving the suprarenal cortex extract in the clinics were charged neither for the extract nor for professional services rendered in giving the injections. From time to time grateful patients have desired to pay the attending physicians, but

in all instances such patients were told that the money could not be accepted, but if they wished they could make their donations to one of the funds which have been established to aid in maintaining the clinics.

PREPARATION OF THE SUPRARENAL CORTX EXTRACT

Much interest has been manifested by many colleagues concerning the method of preparation of the suprarenal cortex extract. It was our belief that if details were given of our method of preparation at too early a date that many attempts would be made by drug houses, both good and of the irresponsible type, to put out similar extracts or unduly exploit the same. For that and other good reasons it was felt that it would be a wiser plan if a patent were secured from the United States Government to cover the manufacture of the extract. In that way unlicensed and improper manufacture and exploitation could be better handled. Moreover, if with the passing of time the extract was shown to have special merit the income which might be received could go into the funds that would enable the clinics to be properly maintained.

The United States Government recently granted patent rights to cover the preparation of the extract, and there is now no further necessity of secrecy on the methods used in its production. This protection by patents should also permit a change in certain clinic procedure methods in the future.

The following is a summary of the technique of the preparation of the extract. Further details of this technique will be gladly given to physicians.

Extracts have been prepared from the suprarenal of various animals, but it has been found advantageous to use the suprarenal glands of the sheep.

The essential steps in the preparation of the extract that is now used may be briefly outlined as follows:

1. The suprarenal glands should be placed in a normal saline solution at a temperature of 15 degrees Centigrade for a period of three or four minutes prior to dissection.

2. Careful preparation of the glands and dissection of a portion of the cortices from the suprarenals should be made under the magnifying glass, until a sufficient amount of the glands are prepared; the glands being kept at all times in a cool, ventilated container, the temperature of which should be kept between 15 and 50 degrees Centigrade. The dissected portion of the cortices, with their envelopes, are used.

3. Pure distilled water is then added, in a proportion of two and one-half parts of water by volume, to each part by volume of the gland material before maceration of the material. The mixture is allowed to stand for about ten minutes.

4. The mixture is next put in a sterile container and subjected to heat, preferably a water bath.

5. In the water bath the temperature of the mixture is raised to 60 degrees Centigrade, and then gradually increased for about a quarter of an hour to 70 degrees, and kept at this temperature for from sixteen to twenty-four hours.

6. It is then raised to a temperature of 85 degrees Centigrade and kept there for one and one-half hours.

7. The temperature is next decreased to 65 degrees Centigrade and maintained at this temperature for a period of twenty-four hours.

8. At any time during this 65 degree temperature period dilute hydrochloric acid is added in amount necessary to produce a very faintly acid reaction (to litmus).

9. The mixture is now removed from the water bath and allowed to cool at a temperature of 55 degrees Centigrade.

10. The mixture is then strained through three-ply gauze, and the residue pressed until substantially all the liquid has been removed.

11. The liquid is next passed through fine filter paper. To the filtrate, absolute alcohol is added in a quantity sufficient to make two and one-half times, or more, of the volume of the filtrate.

12. The mixture is then allowed to stand for twenty-four hours at a temperature of 15 degrees Centigrade, to permit precipitation.

13. The supernatant liquid is then decanted, siphoned off and filtered through fine white filter paper, the temperature being then dropped to 13 degrees Centigrade.

14. At this temperature the mixture is allowed to stand for thirty-six hours for further precipitation and again the liquid is decanted and filtered through fine white filter paper.

15. The liquid is then allowed to stand for twelve hours at the same temperature.

16. After filtering through fine white filter paper the alcohol is distilled off so as to have an alcohol-free aqueous solution.

17. The solution is then carried through a series of steps of chilling, preferably at 15 degrees, and filtered through fine white filter paper.

18. The resulting filtrate is next passed into a sterile flask through a porcelain ceramic filter.

19. A suitable amount of preservative is next added (tricresol, 0.2 per cent).

20. The liquid is again allowed to chill at a prescribed temperature and stand for cloudiness, and if cloudiness is apparent, it is again filtered and passed through porcelain, or its equivalent filter.

21. After standing thirty-six hours and found to be clear, the sterility of the product is tested and finally it is bottled by the customary procedure. The extract is then ready for use.

HOW INJECTIONS OF EXTRACT WERE GIVEN

Injections were made, when possible, twice a week, although there are some patients to whom only weekly injections were given. The dose was graduated from one minim, which was given as the first dose, increasing this amount to twelve minims, which is given as the maximum dose in the average type of patient. Farther along comment will be made concerning patients to whom larger or smaller maximum doses were given. The question of dosage is still being studied and it is possible that these dosages which have been used in the past may be changed both as to quantity, and as to intervals between doses.

The extract was given subcutaneously and at some distance from the malignant growth or involved area, preferably in the arm, when the arm was not involved in the malignancy. Intravenous injection of the extract was given to those patients in whom we desired more rapid action to take place, the doses in these intravenous injections being graduated from one minim up to the maximum in somewhat slower fashion and with longer intervals between doses.

There were no special local irritations at the sites of injections, and there were in many patients little or no systemic or constitutional reactions. The temperatures of the patients did not rise, nor were there any cardiac or other noticeable unpleasant reactions.

SOME GENERAL COMMENTS ON CLINIC MATERIAL

Some of the observations which have been made in our clinics since they have been established in San Francisco, Los Angeles, and Long Beach may be of sufficient interest to warrant mention here.

In the past six months about twenty-six hundred patients have come under our observation. Many of these patients have improved and returned home. Some have died (13½ per cent). The majority of the patients have continued under treatment in the clinics.

EXTRACT INJECTIONS IN CONJUNCTION WITH X-RAY OR RADIUM—SHEEP EXPERIMENTS

In a goodly number of patients who had been given the extract it was noticed that a longer time than usual was required before any macroscopic changes or results could be seen in the area involved. After careful tabulation of these patients we found that they had either received x-ray or radium within a year prior to coming under the extract treatment. This tardiness of such patients to react to treatment was carefully investigated. It is our belief that x-ray and radium therapy delayed the action and beneficial results which so often are evident from the use of the suprarenal extract.

From this observation the question naturally arose as to whether x-ray and radium destroyed the cortex of the suprarenals to in turn create a great deficiency of the hormone, or active principle, derived from the cortex of the suprarenal gland in such an individual. If such action did occur it would naturally account for the observations just noted.

In searching the literature we found that other investigators had already arrived at somewhat similar conclusions. For instance, Golubinin,¹ Harvey,² Strauss,³ and Holfelder and Peiper.⁴ These men reported changes of degenerative nature that were restricted entirely to the cortex after application of deep x-ray over the adrenal glands.

Groedel,⁵ Stephen,⁶ Weinstein,⁷ and Levy and Dorn⁷ reported that irradiation of the adrenals increased blood pressure. Their observations substantiated our viewpoints that if the cortex was destroyed and there was a deficiency of its active principle, or hormone, as contained in our extract, and which seemingly lowers blood pressure, there would naturally be a reaction in such a patient, and consequently a rise of blood pressure.

David⁸ and Hirsch⁹ reported that large doses of x-ray suppressed glandular activity, although small doses at first stimulated activity.

At the present time we are carrying on experimental work on this particular phase of the work

and are using some one hundred and fifty sheep in these experiments, having given these sheep different doses of deep x-ray therapy. We hope in the near future to be able to have some definite information of a microscopic and pathologic nature as to the changes which take place in the cortex of the adrenals following radiation exposures.

The important question which recurs to us again and again is this: Do x-ray and radium, following their use after operations on malignancies, hasten or cause metastases to take place more rapidly, and does their use hasten or cause earlier deaths?

Some very interesting observations in this connection have been given by Doctor Kanavel to Dr. James Percy, the latter quoting Kanavel as follows: "He stated that if a patient, following amputation with a cold steel knife, had a cancer recurrence, such recurrence would take place within a year to fifteen months if pre- or post-operative radiation had been used; and if these had not been used that recurrence would come within two and one-half to three and one-half years." Such a conclusion, if correct, would tempt one to believe that x-ray or radium therapy was not conducive to the ultimate eradication of cancer.

CARBOHYDRATE METABOLISM IN CANCER PATIENTS

Observations on our patients as far as we have gone have caused us to believe that where a blood-sugar level was high the patient reacted less favorably to the extract, and that sloughs would be much slower in formation unless the patients were put on a low carbohydrate diet. This observation is seemingly substantiated by Jackson¹⁰ in his recent paper on carbohydrate metabolism and cancer.

At the present time we are endeavoring to have sugar tolerance and blood sugar tests done on as many of our patients as possible in order to arrive at a more definite analysis as to carbohydrate metabolism in cancer patients.

PAIN IN MALIGNANT NEW-GROWTHS

One of the most outstanding observations concerned alleviation of pain in a great majority of the patients, which alleviation was noted early in the work, as indicated by table given below.

Our observations lead us to affirm that our extract has a vasodilator action, which is in direct contrast to the action of adrenalin, which has a vaso-constrictor action.

We know from our studies on angina pectoris, and from the theories and work of others on that dreaded malady, that the pain in angina pectoris is due to constriction of the coronary arteries. We also know that any artery, when it contracts, causes such a characteristic pain. We know that arterial constriction is brought about by contraction of the muscular coat, which contraction in turn comes from innervation through sympathetic nerve fibers. We have proved in our previous studies that sympathetic nerves are both

afferent and efferent, or, in other words, have shown that a sympathetic nerve is capable of conducting sensations of pain. (Coffey-Brown-Humber: *Angina Pectoris*, 1927.)¹¹

Coming back again to the consideration of cancerous new-growths, we believe that most of the pain experienced by patients suffering from malignancies is a type of sympathetic nerve pain, which in turn is due to vascular constriction. Our belief that the suprarenal cortex extract is a vasodilator leads us to believe also that it is capable of relieving such pain.

In a smaller number of patients who suffer from malignant new-growths, pains have been noted which are due to sensory nerve involvement, either through direct irritation or from pressure causes. Such pain the suprarenal cortex extract does not relieve directly to any degree. The only relief which was obtained in sensory nerve involvement through injections of the extract seemingly came about through necrosis, liquefaction and sloughing, or through disappearance of swelling and induration. If any of these changes resulted, direct pressure on the involved sensory nerve could be lessened and the pain probably would be relieved. An exposed sensory nerve is, of course, capable of causing most intense pain, and the use of the extract will not directly relieve such sensory nerve pain. Fortunately in most patients who are suffering from malignant new-growths, the pain more often is of a sympathetic nerve pain type. The use of the suprarenal cortex extract did relieve the majority of such patients.

IS IMPROVEMENT DEPENDENT ON PSYCHIC CAUSES?

It has been suggested by a goodly number of colleagues that the relief of pain in many of the patients who have received treatment in our clinics is probably dependent upon psychic causes or reactions.

We ourselves do not hold such an opinion, for we have on many occasions used checks or controls in our effort to learn whether the psychic element was the important factor in the relief of pain which was observed.

To illustrate: We selected from twelve to twenty-four new patients who were suffering with intense pain, these patients not being in one particular group who received treatment at a particular time, but being known only to the observer who was giving the extract. In each such patient the needle of the hypodermic syringe was injected into the arm, as if for an injection, but no extract was given. As the first dose in regular routine was only one minim, such a patient was unable to tell that the extract had not been given, and especially so since there is practically no local irritation in any form in these beginning doses. In every instance, when the extract was not given, the patient was not relieved to any degree of the pain, whereas in other patients, running into tens and hundreds, the pain was relieved after the first dose. Upon the second visit to the clinic the extract was actually given

to these control patients, and in practically every instance the pain was subsequently relieved.

A disagreeable and very objectionable feature in the early stages of our clinical work was the offensive odor in the clinic rooms, especially when so many patients were gathered in one large room. You know heretofore many of these unfortunate malignancy patients who had such offensive odor were refused hospitalization. To-day practically none need be refused because of that reason. The use of the suprarenal cortex extract changes the picture. In other words, the odor practically disappears.

QUESTIONNAIRE ANSWERS FROM 672 PATIENTS

The percentages here given were obtained from questionnaires which were answered and signed by 672 representative patients who, suffering from malignant new-growths, and having been positively diagnosed as such, received injections with the suprarenal cortex extract in our clinics. Table 1 presents a summary in the form of percentages which have a bearing on the comments just made.

TABLE 1.—Questionnaire Percentage Results as to Pain—Includes Six Hundred and Seventy-Two Patients

	Per cent
Pain greatly or entirely relieved.....	71.5
Never had any pain.....	10.31
Pain not relieved.....	12.8
Doubtful regarding relief of pain.....	5

Another interesting observation is that a great majority of the patients, after having received several injections of the extract, aside from the local reaction on the malignant new-growths, improved both physically and mentally.

The general condition of such patients appeared to be considerably improved, in that their bowels moved better, appetite and sleep improved and they felt better generally.

The percentages dealing with these symptoms and functions, based on the answers received from the 672 patients already referred to, are as given in Table 2.

TABLE 2.—General Well-Being Results—Includes Six Hundred and Seventy-Two Patients

	Per cent
General improvement (disregarding pain).....	88.9
No improvement.....	6.9
Doubtful as to improvement.....	4+

OBSERVATIONS OF M. G. MACNEVIN

Dr. Malcolm Graeme MacNevin, formerly assistant professor of medicine and chief of clinics, New York Postgraduate Medical School and Hospital, New York, who became associated with us five months ago, has been actively engaged with us in our work in the clinics during that time and gives the following interesting observations based on his experience during this period:

“The cancer patients seen at the Coffey-Humber Clinic at the Southern Pacific General Hospital in San Francisco present the two usual great complicating problems of malnutrition and anemia. Malnutrition and underweight are present in 75 per cent and the hemoglobin ranges between 40 per cent and 65 per cent in the ma-

jority of the patients, with percentages some above and a few below these figures. Over 50 per cent of the patients need blood transfusion, which may have to be repeated several times.

“The patients with milder grades of anemia are given the usual remedies hypodermically or by mouth, preferably by the former method, and these measures are pushed vigorously after transfusion as a routine procedure, in order to sustain the hemoglobin and to lay the foundation for a gain in weight.

“Usually it is a rather uphill problem to improve the nutrition of the cancer patient. However, it has been noted at this clinic that the extract has a stimulating effect on the appetite and bodily vigor in many patients, probably by supplying an endocrine deficiency. Added to this there is a cessation of pain after the first injection of the extract in more than half of the patients who had pain at the time of the first injection; and as a consequence, freedom from the baneful effects of morphine and codeine, which many had been using, all of which pave the way for an intensive feeding program much more likely to succeed in an effort to elevate the individual to a higher physical plane.”

OBSERVATIONS OF A. W. WARD

Dr. A. W. Ward, our oral surgeon, has made a very careful study of cases in the clinics in both San Francisco and Los Angeles. He has complete data on 390 cases. Some of his tabulations are as follows:

TABLE 3.—Showing Per Cent of Focal Infections in a Group of Female Patients Who Had Malignant New-Growths

A.—By Age Periods (160 Female Patients)

Ages	No. of Patients
20 - 30	4
30 - 40	15
40 - 50	44
50 - 60	56
60 - 70	28
70 - 80	13

Total number of female patients reported.....160

B.—Focal Infections (160 Female Patients)

- 139 or 87 per cent had undergone no tonsil operations.
- 12 or 7 per cent had had their tonsils removed.
- 14 or 8 per cent had arthritis.
- 137 or 86 per cent had no arthritis.
- 72 or 45 per cent have or had dead teeth.
- 82 or 51 per cent have or had pyorrhea.
- 43 or 27 per cent had had all teeth extracted.
- 7 or 4 per cent still had good teeth.

C.—By Age Periods (235 Male Patients)

Ages	No. of Patients
20 - 30	5
30 - 40	18
40 - 50	41
50 - 60	56
60 - 70	83
70 - 80	27
80 - 85	5

Total number of male patients reported on.....235

D.—Focal Infections (235 Male Patients)

- 233 or 95 per cent had undergone no tonsil operations.
- 12 or 5 per cent had had tonsils removed.
- 19 or 8 per cent had arthritis.
- 214 or 91 per cent had no arthritis.
- 84 or 36 per cent have or had dead teeth.
- 156 or 66 per cent have or had pyorrhea.
- 56 or 24 per cent had all teeth extracted.
- 10 or 4 per cent still had good teeth.

We believe this line of investigation opens up interesting possibilities. It would be easy to believe that focal infection can be a contributing cause of degeneration of the suprarenal glands, for it has been thoroughly demonstrated that the functions of the liver, pancreas and endocrine glands are altered by focal infection.

HOW IMPROVEMENT IN THE GENERAL CONDITION AIDS

The element of hopefulness which comes into being after injections with the extract seems quite important to us. With improved mental outlook, the patient's mind becomes occupied along constructive lines and an attitude of genuine whole-hearted coöperation is frequently observed. In such patients, with proper diet, an increase in weight to the extent of ten or twenty pounds or more has often been noted. With such improved state of nutrition the hemoglobin rises, and under such improvement a better response to the extract, as evidenced by softening and sloughing of the cancer mass, especially after ten to fifteen injections of the suprarenal cortex extract, has often been observed.

These expressions of improvement seem to us to be important, because we are of the belief that with such improvement in general condition, brought about presumably by the extract, there results increased action by the extract. In other words, a beneficial circle, the reverse of a vicious circle, is seemingly established. Some case reports which emphasize these viewpoints are given in later portions of this paper.

It has been previously stated that patients who sought admission to the clinics for injection with the extract were obliged to submit letters from former attending physicians, in which each such attending physician expressed his opinion that his patient was suffering from a malignant growth that was so advanced as to preclude hope of successful results from the use of radium or x-ray or from surgery—in short, was presumably inoperable.

Now it has been our experience that a certain proportion of such patients, after receiving the extract injections, become so improved that surgery may not be contra-indicated. For example, among other types which have been observed may be mentioned frozen breasts, immovable and solid against the chest walls, with glandular involvement in the axilla and supraclavicular region, changing in character after extract injections, to the extent that the enlarged axillary and supraclavicular glands subside, the induration and hard nodular involvement and carcinomatous mass clearing up, the breast dropping down and becoming pendulous, the malignant area in many instances softening and even sloughing and the angry purplish color changing to more of a normal color. In several instances nodules of varying sizes grew smaller, became flattened and disappeared. Such a type of breast may be said to have changed from an inoperable to an operable breast. Such breasts have been removed, and, after a normal length of time following the sur-

gical intervention, the wound has healed, with no indication of a malignant mass.

In patients in whom the breasts were allowed to continue to slough without surgical interference, the absorption process and convalescence took place more slowly.

ACTIVE PRINCIPLE OF SUPRARENAL CORTEX SECRETION AND DOSAGE OF EXTRACT

We have given much effort in trying to determine what is the best and proper dosage for the suprarenal cortex extract which we have elaborated. We confess that we feel that much is still to be learned on this subject. At the present time we believe that in an adult the cortices of the suprarenal glands secrete each week enough of the active principle, or hormone, to be the equivalent of at least twenty-four minims, and probably more, of the extract which we have elaborated. We have noted patients in whom more than twelve minims twice weekly were necessary to obtain any results whatever. No doubt in these patients the cortices are to a large degree probably functionless.

SUPRARENAL CORTEX ATROPHY IN RELATION TO CANCER FREQUENCY OR AGE

It is well known that the thymus gland normally atrophies before the age of fourteen. And we know that there are changes taking place in the other endocrine glands throughout life. We have found changes in the cortex of the suprarenal glands in individuals past the age of forty, and particularly in those individuals who have died from some type of malignancy.

The interesting question arises, therefore, as to whether the cancer age is that period of our life in which our cortices are most likely to become atrophied or deficient in their function.

ACTION OF EXTRACT IN VARIOUS TYPES OF NEW-GROWTH MALIGNANCIES

Among patients who have been treated are examples of sarcoma of bones, and in the x-ray pictures of these a change has been noted. In these instances calcification seems to have taken place, the bony structure changing from a honey-comb type to a practically normal appearance. In other instances of sarcoma of the bone, with spontaneous fracture, similar changes have been noted, followed by firm union.

Several patients with malignant new-growths on the external tissues will be shown you, either in person or on lantern slides. We have observed such external cancers to slough, granulate, and then go on to healing as in regular course. Several patients had face and lip cancers.

A brief outline of several case histories may be read at this point. The complete history records are on the speaker's table, for those in the audience who may wish to consult them.

* * *

One striking result was in a patient who had a carcinoma of the lung, with pleural effusion. This cleared up entirely, and the patient, who, when the first dose of extract was administered, was on her back in bed, troubled with coughing spells and in a

very weakened condition, is now up and around, performing the normal duties of a housewife, and in excellent condition. The x-ray lung pictures of this patient now show a good functioning lung on the previously involved side.

Mention may be made here of one patient suffering from an endothelioma, with over one hundred lesions on his body and concerning whom three positive biopsies of malignancy were made. The lesions in that patient entirely cleared, all lesions disappearing; the only evidence which is still present of his previous malignant condition being the pink areas where the biopsies were taken, and even these areas are nothing more than scars with practically no induration around them. This patient is here this morning.

Another patient had a carcinoma of the larynx, with involvement of the pharyngeal tissues. This patient came to us, unable to speak, unable to eat with comfort, and with a history of much loss in weight. This patient had been told that he had only a short time to live. Today that patient is talking as well as any of us, is eating normally, has regained his normal weight, is working every day, and there is no evidence of malignancy on examination. This patient has been brought to this San Diego meeting and will be presented to you for your personal observation.

One patient, a boy, seventeen years of age, with an x-ray diagnosis of carcinoma of the antrum, was in such a critical condition that he seemed in the last stages of his trouble. The tissues in this boy responded to extract injections, he has gained twenty-seven pounds, is again back at his job and is performing his normal work every day.

Another patient had a malignant growth in the stomach which, under the fluoroscope, showed a mass which could also be palpated. This patient was unable to eat, vomited frequently, and had lost much in weight. Under extract injections this patient made a steady improvement and on last examination had gained twenty-six pounds. This patient was eating normally, had no vomiting, and was feeling good. The mass in the stomach could not be demonstrated with the fluoroscope on recent x-ray examination.

A man (H. F. H.) was admitted to the clinic February 29, 1930, with diagnosis of carcinoma of the bladder (by biopsy); had had two-thirds of his bladder resected on October 8, 1929. He was suffering intense pain and was scarcely able to walk at the time he received his first injection. At that time he weighed 140 pounds. At the present time he weighs 162 pounds, has only occasional pain and feels very well. He had had no previous x-ray or radium treatments.

A woman was admitted to the clinic in March 1930, with diagnosis of carcinoma of the vagina (by biopsy). At that time her weight was 124 pounds. At the time she was admitted to the clinic she was carried in, and was suffering intense pain. After the second injection of the extract the pain was reduced to a soreness and since the third injection she has had no pain and no soreness. Patient had taken no food since the third week prior to her first injection of the extract. After the second injection of the extract her appetite returned and soon became so vigorous that she wanted seven feedings a day. She began to gain weight very rapidly. At the end of six weeks she had gained twenty pounds, and it was largely during this period that most of the sloughing took place. Since this time there has been no recurrence of pain. There has been no vaginal discharge during

the past two months. Patient's weight is 164 pounds at the date of this report.

A man (J. W. C.) was admitted to the clinic on March 21, 1930, with a diagnosis of carcinoma of the pylorus, the diagnosis being made by x-ray. No previous x-ray or radium treatment had been given, nor had the man been operated upon. Patient had been suffering for over a year with pain, nausea, and vomiting, and had lost about forty pounds in weight. His weight on entering the clinic was 154 pounds. After a few injections, pain and vomiting ceased. At present he weighs 165 pounds, a gain of eleven pounds. Patient states that he is eating better, enjoys his food and feels better in every way.

A man (J. M.) was admitted to the clinic February 12, 1930, with a diagnosis of carcinoma of the stomach, made both by x-ray and at operation. A posterior gastro-enterostomy was done. This patient, on being admitted to the clinic, was very pale and weak and weighed only 118 pounds. He was having much pain at that time. After a few injections the pain disappeared, vomiting ceased and his appetite returned. The patient from that time on has taken his food with comfort and relish, and at the present time his weight is 161 pounds, a gain of forty-three pounds. He has the general appearance of a normal individual at the present time.

A woman (Mrs. N. L. S.) was admitted to the clinic on February 14, 1930, with carcinoma of the bladder (diagnosed by biopsy). She had previously had a growth removed from the bladder. She had given up her business in 1928 and had been in bed almost constantly from that time until she came to San Francisco to receive the injections of the extract in our clinic. She has had a slight gain in weight. When she began the injections she could not walk more than six blocks in a week; now she walks four miles a day. After several injections she began to pass large pieces of slough from the bladder. When she began injections she was compelled to urinate every five or ten minutes, the urinations being intensely painful. At the present time she urinates only every three or four hours, and with no associated pain. Patient noted improvement in her condition almost immediately upon starting the injections of the extract, and at present experiences a very decided feeling of well-being.

Many case reports of similar nature to those which are here most briefly outlined might be submitted did time permit.

Permit us to state at this point that from the beginning, members of the medical profession have been welcomed at the clinics which are under our supervision, and this invitation is again extended to any and all who are interested in the studies which we are carrying on.

AUTOPSIES

We have endeavored to obtain an autopsy on each patient who has died. The following is a digest of a report of Dr. A. M. Moody of San Francisco, pathologist and autopsy surgeon for the clinics:

This is a study covering the period from December 2, 1929 to June 1, 1930.

Since all material has been examined from the standpoint of the amount and type of necroses present, an attempt has been made to use a uniform method of grading such changes. This grading was made on the gross material at the time of the autopsy and the terms or legends to be used were designated

as 0, plus (+), two plus (++), three plus (+++) or four plus (++++), to denote different amounts of necrosis and softening.

The term "four plus" (++++), softening, is used only when all tumor masses are extensively necrotic or liquid.

The term "three plus" (+++), softening, means that there is rather extensive necrosis in most of the tumor masses with a principal mass largely liquid or mushy.

The type of softening and necroses which are present frequently in tumors rarely extend beyond what is herein designated as two plus (++). Although the changes may be similar in type, there are marked differences in degree and extent of the process which is seen in either the three or four plus instances.

The following is a summary of the degrees of softening in the two groups of patients for whom the following notations were charted:*

Summary of Group 1—On Twenty-Three Patients Who Received Eight or More Injections

14 had 3 plus to 4 plus softening
3 had 2 plus softening
5 had 1 plus softening
1 had 0 softening

Summary of Group 2—On Sixteen Patients Who Received Less Than Eight Injections

None had 3 plus to 4 plus softening
5 had 2 plus softening
2 had 1 plus softening
9 had 0 softening

From studies along the lines indicated by the above notations by Dr. Moody we believe that in patients having malignancies of the pancreas little or no softening takes place, except where the extract is given over a long period of time. Malignancy of the liver is one of the types of involvement which is very slow in softening.

This study by Dr. Moody on patients in the San Francisco Clinic covers a period from December 2, 1929 (one month before our preliminary report to the San Francisco Pathological Society) to June 1, 1930.

EXTRACT EXPERIMENTATION ON RATS

The question of the desirability of animal experimentation has arisen with us many times. In a limited series of tests of the extract on white rats, definite sloughing was noted in the experimentally produced tumor masses. Needless to say these experiments are being continued and a progress report will be subsequently given thereon.

It is well to remember in this connection that various substances have been capable of producing in malignant new-growths, a central necrosis. Experimentation on rodents requires considerably more time than we have been able to give thus far.

Again it should be remembered that malignant tumors experimentally produced in rats spontaneously regress. This latter phenomenon may well be harmonized with our theory, since it is not unlikely that an excessive amount of the suprarenal cortical hormone may influence the malignant growth and consequently bring about spontaneous regression in the tumor tissue.

* Detailed data concerning degrees of softening and other factors, as observed in individual patients by Doctor Moody will be given in a table which will appear in the reprints of this article.

THE INNERVATION OF THE ADRENAL GLANDS

At the beginning of our work we realized that very little was known about the functions of the adrenal glands.

Dr. Alfred Kuntz,¹² professor of anatomy at the University of St. Louis, in his recent book, entitled, "Autonomic Nervous System," has the following statement: "Although the cortical portion of the adrenal glands seems to be essential to life (Crowe and Wislocki, 1914),¹³ little is known regarding its specific function."

The innervation of adrenals has been a problem which from the very beginning has been of great interest to us.

COMMENT ON ADRENAL STUDIES BY OTHER INVESTIGATORS

A very interesting article on the subject appeared in the proceedings of the staff meeting of the Mayo Clinic for May 14, 1930, in a paper entitled "The Function of the Suprarenal Gland."

Dr. A. Szent Györgyi¹⁴ made some very interesting statements growing out of his work for many years on the process of oxidation, in the hope of finding the clue to the function of the cortical part of the suprarenal gland. He stated that the chemical study of the suprarenal cortex showed that this organ also contains a highly active and strongly reducing substance, and that this substance is strictly characteristic for the cortical tissue of the gland.

Max A. Goldzieher,¹⁵ in his work on "The Adrenals," published in 1929, gives a very interesting review of the work done up to that date.

Boris Sokoloff¹⁶ has reported the softening of tumor by "corferoll" (a combination of cortical extract and iron). His work was done on rats. His extract was a mixture with iron and pyroll. His injections were made directly into the tumor mass, and not foreign to the growth. He stated in one of his recent articles that he had not made any injections into human beings and did not intend to do so. It would naturally be concluded that results obtained by direct injection into the tumor mass could be accounted for by factors such as local reaction and thrombosis.

Frank A. Hartmann¹⁷ carried on some very interesting experiments in 1926, in which he showed adrenalectized animals could be kept alive by administration of adrenal preparations. His work seemed to show that certain portions of the adrenal gland are absolutely necessary to life.

We in no way disagree with this viewpoint and feel that at least a hormone, which is produced by a certain portion of the adrenals, is necessary for the stabilization of tissue growth, if such stabilization is necessary at any time in human life, for the prevention of malignant growths.

Dr. A. M. Hanson¹⁸ reported four cases of inoperable carcinoma treated with intramuscular injections of extract made from the thymus glands.

As stated previously in this paper, extracts made by us from other glands than the supra-

renals gave faint reactions, but we felt the results were negligible.

Numerous other investigators have carried on work of the type here outlined. Many recent reports, to our minds, have only corroborated and confirmed our viewpoints and observations.

At the present time we only claim that we have a potent extract made from the cortical substance of the suprarenal glands. By the word *potent* we mean that the extract must relieve pain, and must cause more or less softening, liquefaction, necrosis and sloughing of malignant tissue. The extract which has been prepared by us is non-irritating when injected subcutaneously into human tissue, and is non-toxic when injected in prescribed doses intravenously. We may add that we have injected as high as 2 c.c. into the veins of a rabbit without noting any ill effects.

GESCHICKTER'S CRITERIA FOR CANCER CURES

Our clinical studies on the action of the suprarenal cortex extract has led many persons, including a considerable number of physicians, to think that we were offering, or claiming, to have discovered a specific treatment, or cure, for malignant new-growths. At no time have we claimed a cure, or even a treatment for cancer. We have only claimed that our extract from the cortical substance of the suprarenal relieves pain in a great majority of the patients and causes liquefaction, necrosis and sloughing phenomena.

Geschickter,¹⁹ in his article in 1929, laid down certain criteria for judging cancer cures. We ourselves have offered no cure, and do not feel that it is necessary to wait five years (which is the period laid down by Geschickter to prove a cure) before we at least give a progress report on our studies with the suprarenal cortex extract, and its action as noted in clinical experiments. We make biopsies or x-ray diagnosis on all patients, however, and this is in line with the provisions of Geschickter's criteria. We have given the extract injections to patients with all types of malignant new-growths, as they have presented themselves. We have observed patients who have had metastases, in whom the metastases seemingly disappeared.

HOW OUR CLINICS AND OTHER STUDIES WILL BE CARRIED ON IN THE FUTURE—THE BETTER HEALTH FOUNDATION

Under the auspices of the Better Health Foundation of California we intend to carry on a constructive five-year program of scientific research along lines such as have been indicated in this report.

The Better Health Foundation of California is a non-profit corporation, and was organized some time ago to carry on work for the extension of scientific research and other worthy purposes.

The officers of the Better Health Foundation of California recognize the fact, which we all so fully appreciate, that up to now the cancer problem has not been solved; also, that it is unscientific and unwarranted for any individual, or any association of individuals, to attempt to become infallible authorities on a subject concerning

which so many vital facts are still unknown. As Californians and Pacific Slope physicians, you may be interested in knowing that the Better Health Foundation has on its board of directors such well-known medical men as the following: Reginald Knight Smith, president; John Gallwey, James W. Ward, Langley Porter, Charles D. McGettigan, Harold Brunn, O. D. Hamlin, William Palmer Lucas, Dudley Smith, Ferdinand Stabel, Hartley F. Peart, attorney for the State Medical Society, and Celestine J. Sullivan, LL.D., editor of the *Better Health* magazine.

We ourselves believe that the medical profession and the public may confidently rely upon the broad vision and sound judgment of these experienced and high-minded men who compose the board of directors of the Better Health Foundation to cooperate with us in the scientific and fact-finding studies on this suprarenal cortex extract with which we have been carrying on our studies, and on other procedures as well, and that they will follow truth in any direction in which progress may be expected.

To obtain the best results it has been decided that the future distribution of our extract for research work to cooperating doctors, clinics or hospitals will be made available through the Better Health Foundation, because in that way improper claims or commercial exploitation of the extract may be better prevented.

A presentation of lantern slides and of patients who have been kind enough to come to this meeting will now be made. Those of you who wish to examine the case histories and the patients are at liberty to do so.

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DISCUSSION

HAROLD BRUNN, M. D. (384 Post Street, San Francisco).—As I said to Doctor Coffey soon after he read his paper at the Pathological Society on January 6, 1930, "It's hell if you have it, and it's hell if you haven't it."

Doctors Coffey and Humber have enunciated a hypothesis as yet unproven. They have enunciated a mode of treatment with results such as you have heard. They have described pathologic changes as a result of these injections. Are these findings convincing enough to demand verification? Shall the searchlight be thrown upon them or shall we cast these observations aside and say, "They are worthless." What shall our attitude be? Shall we be negative? Shall we be actively antagonistic or shall we assume an attitude of helpfulness?

Each one of us must decide that question for himself. As for myself, I have decided that I will give my sympathetic coöperation and will feel satisfied if only a grain of truth may be found; for I would regret exceedingly to thwart in any way an effort so honestly and sincerely made. On the other hand, our critical scientific judgment must not be carried away by overenthusiasm. In such a vital subject as this the basis of every statement must be carefully weighed and considered.

Eight months have now passed since Doctors Coffey and Humber's first announcement. Several thousand patients have received the injections. It seems to me that the time has now arrived when definite steps should be taken, with the assistance of the best minds that can be obtained, to evaluate what has already been done—and to organize a plan for future study.

J. W. COX, M. D. (Field Director, American Society for Control of Cancer, New York City).—I do not know why I have been called on to speak in this discussion. I have talked the entire situation over with Doctors Coffey and Humber and expressed my opinion of what I have come in contact with since I have been here. You have heard everything I have heard in your own community, for I believe most of you are physicians from California and the Pacific Coast.

I want you to keep this in mind, that the average doctor sees about three cancer patients a year and most of those patients are of the incurable type. He wants to get rid of them. I am saying this for a reason, and I believe this is true. Most of the patients who come to a doctor in the beginning are given surgery, x-ray, and radium, and how few of them, one per cent of the early cases, get good results; while in the later stages 20 to 30 per cent are given no aid.

I have been visiting institutions in various parts of the country. It is not necessary for me to tell you of what is happening regarding incurables. Consider what happens to them in your own particular community. Often in our institutions they are most pathetic patients experiencing considerable pain, and they die, grasping for straws. They are asking for and seeking relief. Not one institution was giving special treatment. That patient who was not relieved by surgery, x-ray, or radium was permitted to die at home, to be made as comfortable as possible, with a considerable degree of hopelessness and did not go to bed until within a couple of weeks of his or her death. We fail to sufficiently consider the incurable patient. Since I have been in San Francisco and Los Angeles I have been impressed with the careful con-

sideration that has been given to the usually considered hopeless patients. I find that the patient who has received the extract has a better feeling of well-being and of better nourishment. I have talked with many who state they have been relieved of pain. I had never seen the smiles on the faces of cancer patients such as I have seen here. The word "cure" has never been used to my knowledge since I have been in San Francisco and Los Angeles.

Now about this practical question of the Coffey-Humber progress. These doctors are working on the physiology of the adrenal cortex, which is being done through an enormous number of experiments. When they get through, we will know something about the cortex of the adrenals. I do not believe this is a specific that kills cancer cells. I think Doctors Coffey and Humber agree with me. On the other hand, I believe there is something to it. If nothing else comes of it, isn't it worth while? Hasn't it been handled on an ethical plane and in a scientific manner? It is unusual, perhaps, but many good things are unusual. It may be an insufficient mass of data has been secured up to the present time to warrant conclusions, but the material that has been gathered in this work warrants further effort in detail, chemically, pathologically, and clinically.

I will say that I have seen groups of patients who were taking the extract who, as a group, were doing fine. Again, I have seen other groups who were not doing so well. We are all much interested, and we will have to admit there is something to the adrenal cortex that we do not know about; and if Doctors Coffey and Humber will continue and carry on we will be grateful to them.

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K. F. MEYER, Ph.D. (Hooper Foundation for Medical Research, University of California).—It doubtless appears presumptuous to discuss the paper of Doctors Coffey and Humber which deals with a field of endeavor largely foreign to the reviewer. In fact, it is hazardous for anybody to discuss this subject in which we are just beginning to realize the importance of detailed data and from which an endless number of questions and problems can be formulated but no definite conclusions drawn. As in nearly all developments of medicine, the new problems seem at first simple. A leading thought or hypothesis becomes the stimulus to the undertaking. With the accumulation of facts the original concepts may become obscured and the problems grow more complex. This is particularly true when one enters a field so new as that which deals with the relationship of the endocrines to tumor growth. Doctors Coffey and Humber have developed some interesting ideas and observations which certainly deserve further investigation. The experimentalist would naturally approach the many problems which immediately suggest themselves by way of the laboratory. In the progress report by Doctors Coffey and Humber it is shown that the direct clinical tests may give encouraging findings. However, since they are working with at least two unknowns, first, the chemical and the pharmacological properties of the extract prepared according to their formula; and second, the cause or causes of the tumors, it is unquestionably imperative to combine laboratory and clinical studies. Methods to test the potency of the extract, its uniformity in active substances and its effect on cellular growth in tissue cultures are needed. There are many similar phases which must be investigated. The execution of the program may require years of painstaking labor. It is a great satisfaction to know that "The Better Health Foundation" sponsors such a program and is promised funds adequate to carry it out.

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JAMES PERCY, M. D. (1030 South Alvarado, Los Angeles).—There is one phase of this treatment that has not been emphasized or discussed at this meeting. The vast majority of the people who are taking the Coffey-Humber suprarenal cortex extract injections can be classified as terminal cases, and when

you see any of these patients under treatment improve, it is foolish at the present time to try and classify them along usual scientific lines. Dr. James Ewing said to me when I saw him in New York City last June, "There are many things in medicine that scientifically we decide cannot be, and yet clinically they may finally prove to be true."

In what I shall say I do not want to be misunderstood, because many of these people who apply for this treatment are not cured; even though a large percentage of them are benefited amazingly both physically and mentally even when, I repeat, they are not cured. To illustrate: I saw two men in the Coffey-Humber clinic at Los Angeles who had about the same degree of gross mass of cancer in the corner of their mouths. The disease involved both the skin and the mucous membrane inside the cheeks. Under the microscope the tissue removed at biopsies gave exactly the same picture, and yet under exactly the same treatment one of them went on to a splendid recovery, while the other did not seem to be improved in any measure, so far as the local condition was concerned.

If any of these patients has previously had an application of radioactive methods followed by the usual fibrosis, it takes twice the amount of the extract to give the same result as occurs in those who have not previously been treated by radioactive methods. Another practical observation is that where the malignancy is fixed as in the breast, after the application and administration of the extract, a sort of hemolysis seems to take place between the dead and the living tissues, making the breast, or other fixed malignancies, movable, and therefore much more favorable for surgery. When one of these cases is subjected to operation, even by cautery, it is quite remarkable how freely they bleed, even though the cautery is used to prevent the bleeding. In other words, it takes twice as much heat to stop the bleeding in patients who have been given the extract injections as it does in patients in whom the cortex extract has not been used.

From my own general observation I believe that easily 80 per cent of these patients are relieved of pain following administration of the extract. Every once in a while I meet a physician who has had one patient receiving these injections concerning whom he reports there was no improvement either locally, or in the patient generally. In one patient this can easily be true, but let me beg of you not to draw conclusions from an experience of just one patient in any method of treatment in any disease. When I was in Germany many years ago I attended one clinic where they insisted that one should not decide for or against the value of any method of treatment without first having had an experience with at least one thousand patients in that particular method.

I have heard it stated that the Coffey-Humber extract benefits were due to spontaneous recessions of the growths. This may be true, but if it is, there are a larger number of spontaneous recessions resulting from these injections than has ever been experienced before in the treatment of malignancies, and if this extract can initiate spontaneous recession it is a new phase of the subject that has never before had an explanation.

Dr. James Ewing of New York told me a few years ago that "the cancer process was very insecurely balanced." That was one of the most wonderful statements relative to cancer clinically that has ever been made.

With your permission I shall present at this time two patients from among many I have observed. One of these is the man who is before you. About two and a half years ago he was operated upon in the

Los Angeles General Hospital for carcinoma of the stomach. When the abdomen was explored, it was found to be an inoperable carcinoma of the pylorus which had extensively invaded the liver. The record shows that the surgeon decided he was utterly inoperable and the abdomen was closed. The man was finally discharged from the hospital and was not seen again for about one and a half years, when he appeared before the malignancy board of the same hospital. The board members carefully examined him and decided he was inoperable and recommended that he be sent to the Los Angeles County Infirmary for medical palliation. He was cachectic and had lost a great deal of weight and was vomiting blood, and he was slowly starving to death. In addition there was a hard, fixed mass in the epigastrium which was estimated to be the size of a child's head. This man gave a perfect picture of a terminal intra-abdominal carcinoma. He was at the Los Angeles County Infirmary for a few weeks, and then he was brought in with some others to the Coffey-Humber clinic. He was assisted into the building by an attendant on each side supporting him. After nine injections of the extract he began to improve, and as you see him standing here today, he has gained twenty-five pounds in weight, he retains his food without distress, he has no cachexia, his nutrition is excellent, and, most remarkable of all, it is utterly impossible to palpate or find any abnormal growth anywhere in his abdomen.

The next patient whom I wish to present is one upon whom a laryngectomy was done by Dr. Simon Jesberg of Los Angeles. Six months after his operation this patient developed a mass under his left mandible estimated to be the size of a goose egg. The mass was hard, deeply fixed, and caused pain down the shoulder and along the side of the neck and into the ear. He was referred to my care by Doctor Jesberg for the removal of this mass. The patient, however, requested that before any further surgery was done, an attempt to cure him be made with the Coffey-Humber extract. He was sent to the Coffey-Humber clinic and the first effect of the injections was to cause about a two-thirds recession of the growth under the jaw. Following this, even with increasing doses of the extract, the growth began to enlarge and really regained its original size. In addition a new mass that was hard and fixed and about the size of a lima bean developed on the surface of the left parotid gland. In addition the pain returned, especially in the jaw and ear, this pain being sufficient to require opiates. The patient requested that he be operated on, but this was denied him for the reason that it was not certain that he would not still get benefit from the extract, and this proved to be the result. Under its continued administration, in about two weeks the growth gradually began to recede and at the present time there is absolutely nothing palpable either in the neck or over the parotid gland. You are at liberty to examine this patient when you see him in the anteroom.

I was very much interested in a statement just made by Doctor Cox of the American Society for the Control of Cancer, that the average physician sees but two or three of these patients a year. The truth of the matter is that many cancer patients never consult a physician, for somehow the public has been educated to believe that we have little or nothing to offer them, either in the way of palliation or cure. As a result these patients again and again go to every source for relief outside of the medical profession which they can find. We physicians must change our attitude toward the treatment of these patients with malignant growths. We could do a lot more for them than we now do with methods we already have if we used our procedures in the early stages. Too often, however, we drive them to the quacks, but are finally compelled to care for them when they return to us in the terminal stages of the disease.

Doctors Coffey and Humber have stirred up the public on the cancer question much as the San Francisco fire stirred up a lot of the derelicts in Chinatown of that city. The fire forced them out into the daylight and sunshine, something many of them had not seen for years. These two physicians have made the public "cancer conscious." They have made it respectable for people to acknowledge they are sufferers from the disease. It has also given lay persons and patients great hope, and it has stirred philanthropic men to set aside money for further investigations. For example, both in San Francisco and Los Angeles such organizations for the study of these questions have come into existence largely as a result of the experiences of these two men.

One of the patients concerning whom Doctor Humber showed x-rays on the screen and in whom there had been a recurrence in the right thorax following an amputation of the breast, had also had previous pre- and postoperative x-ray therapy two and a half years before. Over 800 cubic centimeters of fluid was aspirated every four days from the patient's right thorax. She was bedridden, breathless, losing weight—a perfect picture of a terminal case of recurrent cancer in the lung, and yet after the first injection of the extract no further tapings of the chest were required and this patient, clinically at least, if not entirely well is certainly so greatly improved as to consider herself well.

Another patient shown on the screen was a woman whom I saw in consultation, in the Hollywood Hospital, suffering from bone metastasis following an amputation of the breast. There was complete inability to move her body; she was taking morphin and receiving very necessary blood transfusions about every four days; and every long bone in her body, especially the pelvic bone, seemed honeycombed with malignancy. At the present time this patient is out of bed, travels about at will, drives her own machine, and apparently seems to be on the high road to a good recovery. The whole series of x-ray pictures in this woman is a most marvelous exhibition of calcification and filling up of these honeycombed areas toward a normal appearance, as seen in the last x-ray pictures.

We should remember that from its scientific aspects we know little or nothing about cancer. Unfortunately most every physician and surgeon when he sees a patient with cancer attempts to judge it, as far as its management is concerned, as if he did know something about it. As a result we are continually making the mistakes that are so often observed in the practical treatment of cancer. We should not assume that little or nothing can be done for cancer until we try some constructive form of treatment. It is certain that in a large percentage of cases something can be done to the average cancer mass with this extract that is outside of anything we have heretofore experienced in the treatment of malignancies.

I once asked Beneke of Germany, in whose laboratory years ago I spent several months, if anyone would ever be able to tell us the cause of cancer. He seemed to be lost in a reverie for a few moments and then replied with this Delphic remark: "He who first tells us the cause of cancer will be in a position almost to describe the anatomy of the human soul."

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DOCTORS COFFEY AND HUMBER (Closing).—In closing the discussion, there is only one point we wish to bring out. As we stated in our paper, we do not claim our extract is a specific. Any remedy to be classified as a specific has properties to destroy. We believe that malignant cells as such, are due to a perversion of their original function. The continuance or normal life of a cell depends upon its intrinsic properties or extrinsic influence. Abnormal action of either factor results in extinction or mutation into another form. Presumably this is intrinsic, due, as we believe, to a deficiency of an hormone or active principle. A supply of such active principle or hormone prevents a further mutation of normal cell function with an evolution or self-extermination of disfunctioning cells.

BASIC PRINCIPLES INVOLVED IN MODERN CONTROLLABLE SPINAL ANESTHESIA*

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AND

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FOR the successful administration of spinal anesthesia, a knowledge of its historical development is desirable. Lack of knowledge of the underlying principles of anatomy, physiology, and pharmacology has in the past prevented the proper development and usage of this valuable form of anesthesia.

HISTORICAL DEVELOPMENT

In 1885 Dr. J. J. Corning,¹ of New York, accidentally produced a paralysis of motion and sensation in a dog by the injection of two cubic centimeters of one per cent cocaine solution into the lumbar region. He continued his experiments on man, but not being a surgeon did not appreciate their significance. Quincke in 1891 introduced the idea of lumbar puncture and showed that cerebrospinal fluid could be removed with safety. Beir combined these two new thoughts and established the surgical application of spinal anesthesia by an experiment on himself and his assistants, using lumbar puncture, after the method of Quincke, and injection of two cubic centimeters of one per cent cocaine as suggested by Corning. After the appearance of Beir's paper, many surgeons throughout the world, especially in America and France, adopted the method.

The procedure, however, was popularized by Tuffier of Paris, who extended its application to the genito-urinary organs and the abdomen. Then, as in all new methods in medicine, many men proceeded enthusiastically to attempt all types of surgical operations under spinal anesthesia. They did not stop to consider the technique nor contraindications. The underlying physiology was not understood. Numerous reports of serious complications, such as severe depression of blood pressure and fatalities supposedly due to respiratory failure, consequently followed. At this time these fatalities were thought to be due to the well-known toxicity of cocaine and the procedure was deferred until less toxic drugs such as stovocain, trocaine, novocaine, etc., were discovered. Even following the use of these less toxic drugs undesirable symptoms were noted, such as an alarming drop in blood pressure and respiratory failure. The prevailing opinion was that these symptoms, especially respiratory failure, were due to the diffusion of the anesthetic solution in the spinal fluid to the medulla oblongata, thus reaching the center of respiration and blocking it off.

In an attempt to prevent the so-called diffusion of the drug to the higher centers, it was thought that the head must be elevated and in many in-

* From the Surgical Service, Mount Zion Hospital.

* Read before the Anesthesiology Section of the California Medical Association, at the Fifty-ninth Annual Session, Del Monte, April 28-May 1, 1930.

stances the patient was kept in the sitting position during the operation. It also occurred to some of the pioneers that the injection of a solution heavier than the spinal fluid would be safe for all operations that could be performed in the sitting position; and the use of a solution lighter than the spinal fluid would be equally safe if the patient could be placed in the Trendelenburg position. So in 1908, Wayne Babcock² added milk sugar to make a heavier solution and alcohol to make a lighter solution. Despite the introduction of these new steps in the technique of spinal anesthesia (that is the use of a solution of variable specific gravity and of a posture which would prevent the diffusion of the anesthetic upward) the danger of circulatory and respiratory failure seemed still to be present and spinal anesthesia gradually lost its popularity and was considered a dangerous procedure. A few courageous men, such as Babcock and Gaston Labat, continued to use it with care and discrimination, at the same time gaining increased experience and a clearer conception of the physiological mechanism which produced the circulatory disturbance and respiratory failure.

SPINAL ANESTHESIA NOW BASED ON SCIENTIFIC KNOWLEDGE

Today, again a great wave of popularity for spinal anesthesia has swept throughout the country, and the demand for this type of anesthesia is increasing as the profession becomes better educated and has a clearer conception of just exactly what happens in the human body when novocain or any similar anesthetic drug, such as stovocain, is introduced into the spinal fluid.

Experimental pharmacology teaches us that novocaine, in common with all cocaine types of drugs, has a specific chemical affinity for nerve tissue. It is for this reason that in local regional block where we inject more or less blindly in so far as the exact location of the nerves supplying the area are, we obtain anesthesia because the solution specifically has an attraction to the nerves. Furthermore, experimental pharmacology has shown that novocaine has a much greater affinity for sensory nerve fibers than for motor nerve fibers. Thus, if novocaine is injected high up into the sciatic nerve of a frog, there is no reflex response to electrical stimulation distal to the point of injection, showing the sensory fibers are blocked; but stimulation central to the point of injection causes a contraction of the muscles of the entire limb, showing the motor fibers are not blocked by that particular concentration of the drug.

When novocaine is introduced into the sub-arachnoid space, it is being placed into the spinal fluid which bathes exposed nerve roots, whose histological structures are slightly different from the peripheral nerve fibers in that, within the spinal canal the nerve roots are not covered by the epineurium or connective-tissue nerve sheath present in all extradural nerves. Consequently, the novocaine is instantaneously attracted and

rapidly combines with these nerve roots much as a blotter absorbs ink, with resultant instantaneous anesthesia of the region supplied by them. The gray or noble substance of the spinal cord is not affected by the drug because of its protective white sheath and because of the greater affinity of novocaine for the exposed nerve roots, especially the sensory nerve roots. Anesthesia, therefore, is due *not to a physiological section of the spinal cord* but rather to a blocking of the peripheral nerve roots within the dura in a manner similar to the anesthesia obtained by para-vertebral injections. Hence, we see that the term spinal anesthesia is a misnomer, as we have no anesthesia of the cord, but only a sub-arachnoid block of the nerve roots coming off the cord. The novocaine acts like a dye, impregnating nerve tissues more deeply at the first point of contact, and the anatomy of the contents of the spinal canal is such that the posterior or sensory nerve roots offer the first point of contact. The anterior or motor roots receive less of the drug for two reasons: first, because they are less susceptible from the physio-chemical standpoint, and secondly, they receive a less concentrated solution of the injected drug because they are farther away from the site of injection and partially separated from it by the inter-arachnoid trabeculae. This then explains why we may have complete anesthesia of the lower limbs of the patient, yet he is able to move his legs. It also explains why Koster³ of Brooklyn is able to perform operations on the head and neck without getting paralysis of the diaphragm. The anesthesia in this case being due mainly to blocking of the cervical posterior sensory roots, whereas the phrenic nerve supplying the diaphragm comes off these same cervical segments but arises from the motor or anterior roots.

EFFECT ON SYMPATHETIC FIBERS AND SPLANCHNIC AREA

We do not wish to give the impression that the introduction of novocaine into the spinal canal produces no effect on the anterior or motor roots. The point we have made so far is that the bulk of the novocaine is absorbed by the posterior or sensory roots. That the anterior roots are affected also is definitely shown by the effects produced on the sympathetic nerve fibers present in the anterior roots. A study of these effects will help to an understanding of the cause and correction of the dangers formally associated with spinal anesthesia.

From the second thoracic to the second lumbar segment there are present sympathetic nerve fibers which emerge from the anterior roots by way of the white rami communicantes and join the abdominal and thoracic sympathetic chain as preganglionic fibers. These fibers carry vasoconstrictor impulses which keep the great splanchnic bed of blood vessels in a state of constant contraction. In the thoracic region they carry impulses which accelerate the heart beat in opposition to the impulses of the vagus, which tend to slow

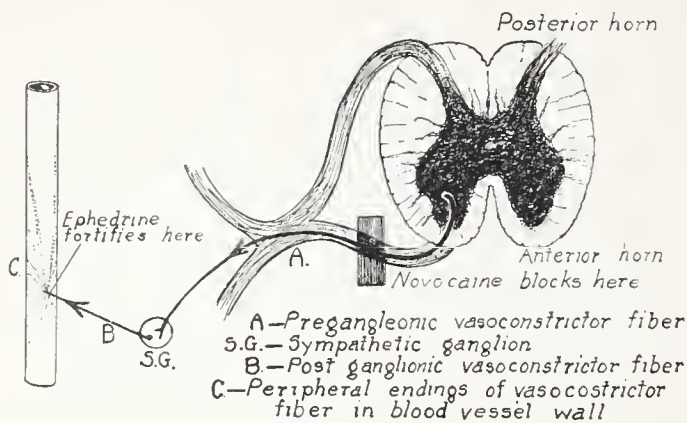


Fig. 1.—Illustration showing why ephedrin prevents a drop in blood pressure even though the vasoconstricture fibers in the anterior roots are anesthetized.

the heart beat. If all of these fibers are cut in the experimental animal, there is at once noted a tremendous dilatation of the blood vessels of the splanchnic, causing a pallor of the peripheral tissues with a marked drop in blood pressure. The heart is also slowed, due to unopposed action of the vagus, and the animal finally dies because it bleeds to death into its own splanchnic and has no blood left to oxygenate its vital cerebral centers.

In the human being the introduction of novocaine into the spinal canal may result in a physiological section of the sympathetic fibers present in the anterior horns of the cord, and as these fibers carry constant contractile impulses, there results a relaxation of all the splanchnic blood vessels with a loss of tonus of the blood vessel walls. This affects the contractility of the blood vessel

and minimizes its ability to resist the heart wave so that a profound drop in blood pressure results. The action of the heart being also reduced by blocking the cardio-accelerator fibers in the sympathetic system, the waves sent out at each systole are imperceptible and the circulation is slowed.

ANEMIA DUE TO POSITION

A system of circulation depending chiefly on gravity is now established during which the lowest or most dependent parts of the body are rich in blood, the elevated parts becoming poor and anemic. If the head is kept elevated, the brain suffers from acute anemia, which produces respiratory disturbances ranging from embarrassment and the classic air hunger to complete respiratory failure. The pallor, cold sweats, nausea, and vomiting, likewise can be explained by anemia of the vital cerebral centers, not by the diffusion of the anesthetic drug to these centers as was formerly thought. The assumption that the injected novocaine was diffused to the brain and produced these respiratory and circulatory disturbances is refuted by clinical findings and is contradicted as well by laboratory findings.

Koster and Kaman recently proved by experiments on frogs, using a larger dose of novocaine than that ordinarily used in the human and applying it directly to the respiratory center in the medulla, that it did not cause any respiratory embarrassment.

It can now be definitely stated that death during spinal anesthesia is due to an acute anemia

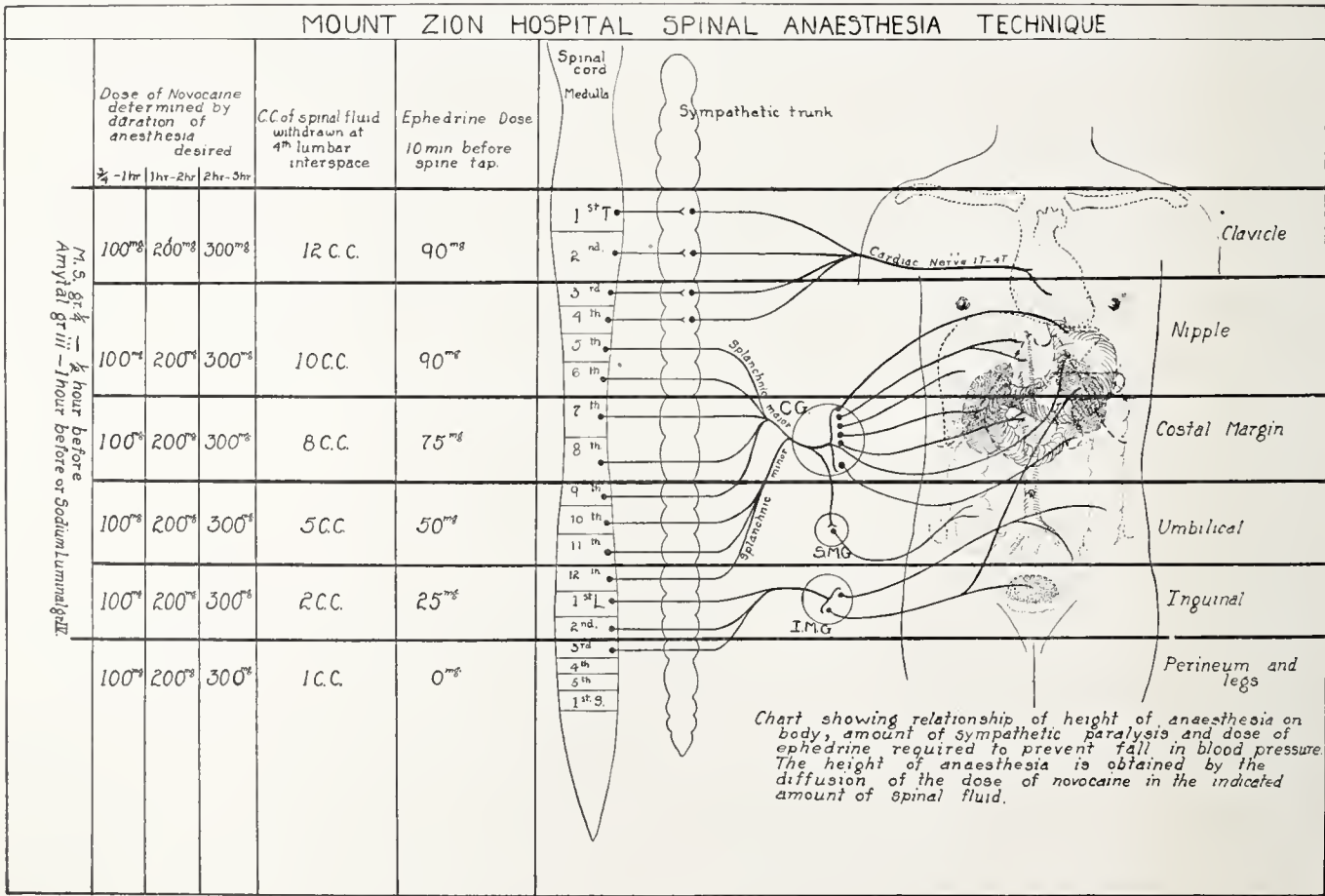


Fig. 2

of the brain, not to anesthesia of the respiratory or vital centers.

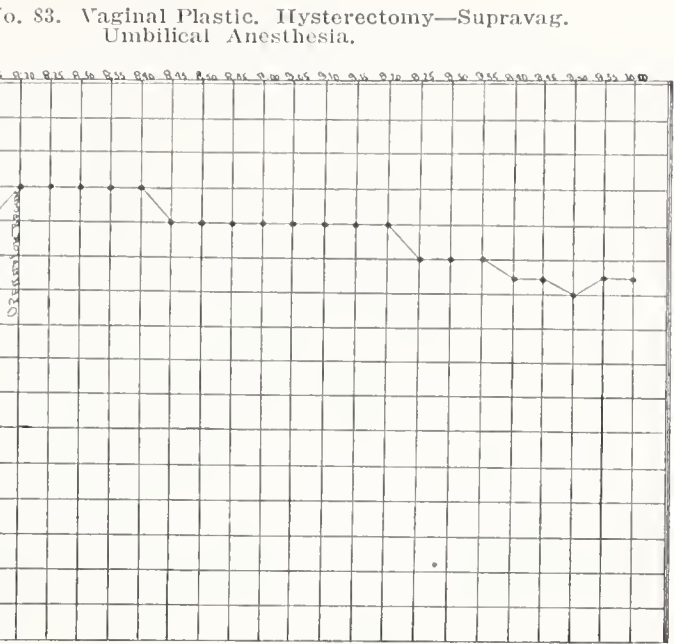
With this understanding, *the reason and the indication for the immediate use of the Trendelenburg position in every case of spinal anesthesia becomes very clear.*

FALL IN BLOOD PRESSURE—CAUSE AND TREATMENT

The severity of the fall in blood pressure and the resultant circulatory disturbance just described will depend upon the number of sympathetic vaso-constrictor fibers involved in the anesthesia. If the anesthesia extends only as far as the second lumbar nerve roots, there should be no involvement of any sympathetic fibers and no drop in blood pressure. Clinical results prove such to be true. If the anesthesia reaches to the first thoracic segment all of the sympathetic fibers will be involved and there will be a maximum drop in blood pressure. If it reaches only to the sixth thoracic, a drop in blood pressure follows, but not with the degree observed in the higher anesthesia just mentioned.

Thus by remembering that spinal anesthesia is simply a segmental nerve root block, one can understand and often predict the severity of the vasomotor collapse that may accompany it. It is this contribution of Gaston Labat⁵ that has made possible spinal anesthesia without the danger to life and without the embarrassing symptoms of pallor, cold sweats, nausea and respiratory embarrassment which so baffled the early workers in this field.

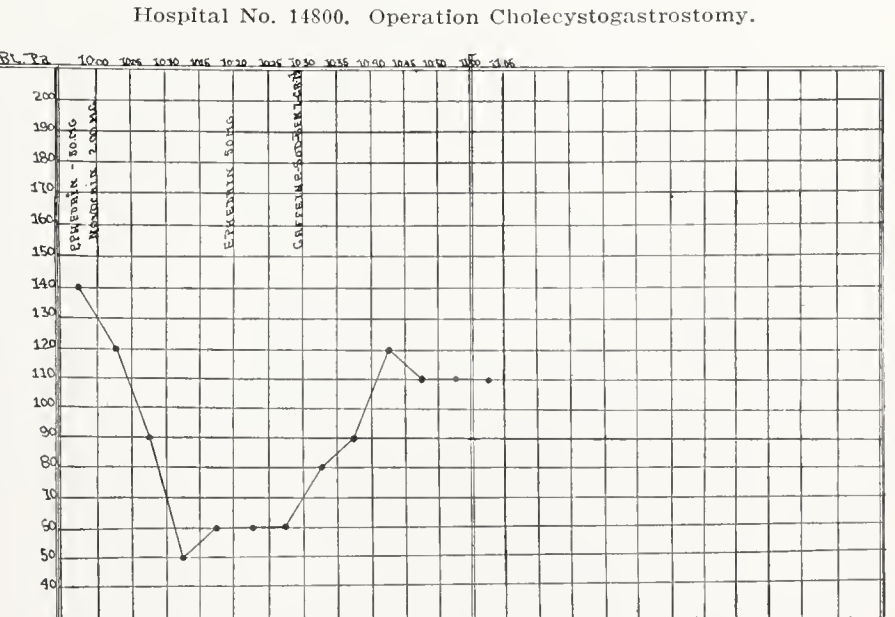
Today, we have not only the Trendelenburg position to combat this fall in blood pressure, but we have also an effective drug which is a physiological antidote to the effect of novocaine on the sympathetic vaso-constrictor fibers. We refer to ephedrine. The pharmacology of this drug has been worked out very completely by Chen and Schmidt.⁶ They have shown that the drug produces a rise of blood pressure by a direct action on the peripheral ends of the vaso-constrictor fibers in the walls of the blood vessels.* Therefore although the pregangionic vaso-constrictor fibers may be blocked by the novocaine in the anterior horn of the spinal cord, if ephedrine has been previously injected, it has already fortified the peripheral ends of the vaso-constrictor fibers in the blood vessel walls so that there will be no dilatation of the vessels and no drop in blood pressure. Moreover this action of ephedrine (see graphic chart No. 1) in contradistinction to adrenalin lasts a sufficient length of time to allow the anesthesia of the vasomotor to wear off and again conduct normal vaso-contractor impulses.



Graphic Chart No. 1.—Illustrating how an extra dose of ephedrin may raise and maintain the blood pressure above normal during an operation. For umbilical anesthesia 50 milligrams would have been sufficient, but as the patient's normal systolic was only 90, an extra dose was given with a resultant well maintained blood pressure.

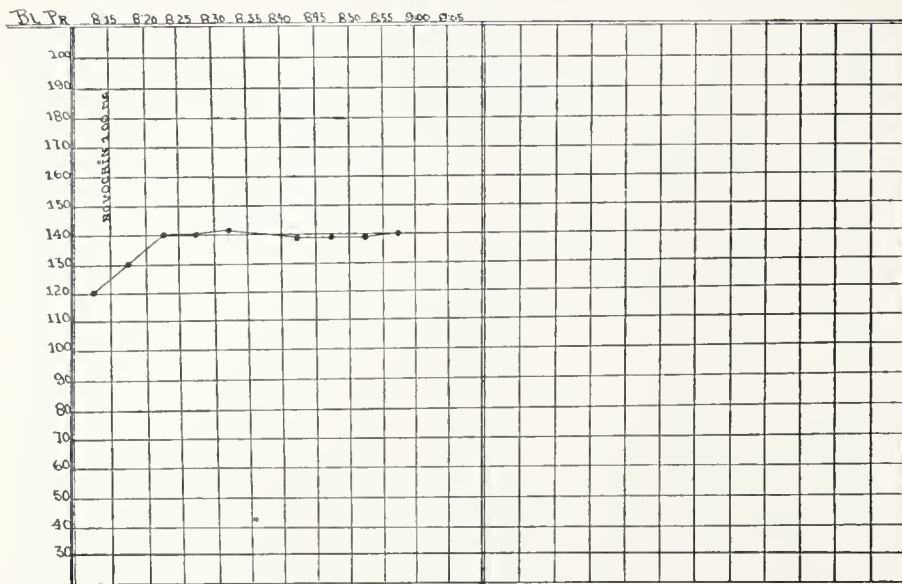
The ephedrine must be given from five to fifteen minutes before the novocaine is introduced into the spinal canal, the average time being ten minutes. If given later, (see graphic chart No. 2) its effect is not produced because the slowing of the circulation prevents its rapid absorption and

* Recent work by Tainter seems to indicate that ephedrin acts directly on the smooth muscle of the blood vessel itself. However, this point is purely of academic interest, as clinically the result is the same.



Graphic Chart No. 2.—Showing the result of giving ephedrin too late. It was here given simultaneously with the injection of the novocain intraspinally. It did not have time to act, so there was a pronounced drop in blood pressure. It must be given from five to fifteen minutes before the spinal tap.

Hospital No. 6716. Hemorrhoidectomy. Perineal Anesthesia.



Graphic Chart No. 3.—Illustrating the fact that no ephedrin is needed and there is no drop in blood pressure when only a perineal anesthesia is obtained.

distribution to the peripheral vaso-constrictor ends.

The introduction of the Trendelenburg position and ephedrin into the spinal anesthesia technique having eliminated all dangers due to a drop in blood pressure, those interested in the development of this form of anesthesia have now turned their attention to a study of the methods of controlling the height and duration of the anesthesia produced.

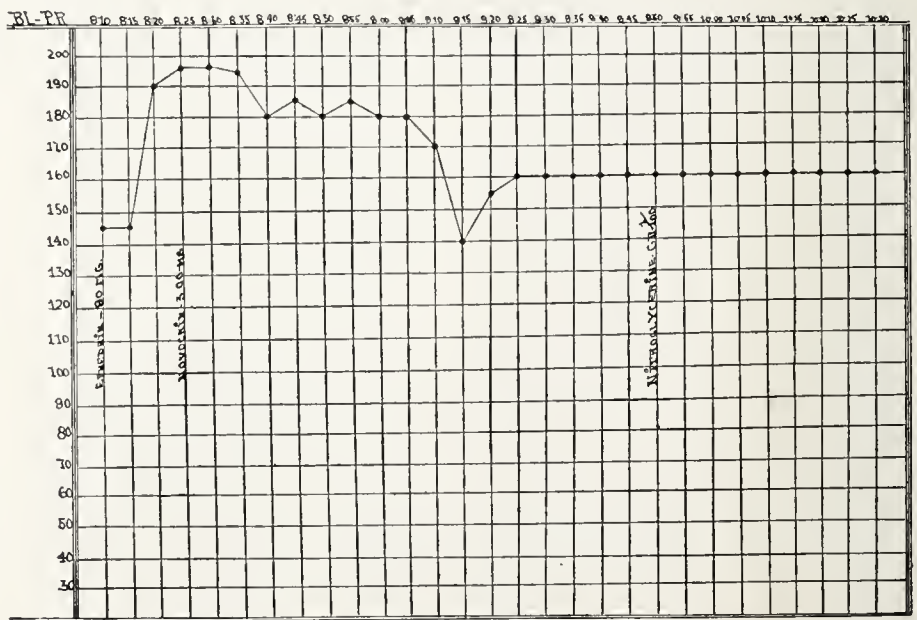
SEGMENTAL ANESTHESIA

Study along these lines is not only of recent origin, but dates back to the beginning of this subject. It was early recognized that although there is a circulation of the cerebrospinal fluid, it is not very active or very strong, and proved by studies by Dandy and also by Solemn. Solemn injected a dyestuff, phenosulphophthalein, into the spinal canal in the lumbar region, and then withdrew cerebrospinal fluid from the cisternal region at varying intervals of time and tested for the presence of the dye. His results lead to the conclusion that under ordinary conditions there is not very much movement from one locus to another of a substance introduced into the cerebrospinal fluid. More recently Ernest Sachs⁷ and his co-workers have confirmed by direct experimentation the fact that there is no active circulation in the cerebrospinal fluid, but that the diffusion of substances introduced into the spinal canal is determined only by the physical laws of diffusion. Hence, assuming other factors are constant, if novocaine is introduced into the second lumbar interspace, it will bathe the nerve

roots only at that level and anesthesia will be produced only in the region supplied by the nerve fibers coming off the cord at approximately that level. This is the basis for Jones's work, who claims to get true limited segmental anesthesia. Thus he injects into the medi thoracic region and gets a limited anesthesia of the upper abdomen and lower thorax and no anesthesia either above or below these regions. If he wishes only anesthesia of the neck and the upper chest, he injects into the midcervical portion of the spinal canal and obtains no anesthesia of the body below that level. His method, however, is objectionable and dangerous because of the possibility of injury to the spinal cord by the high injections. As circulation of

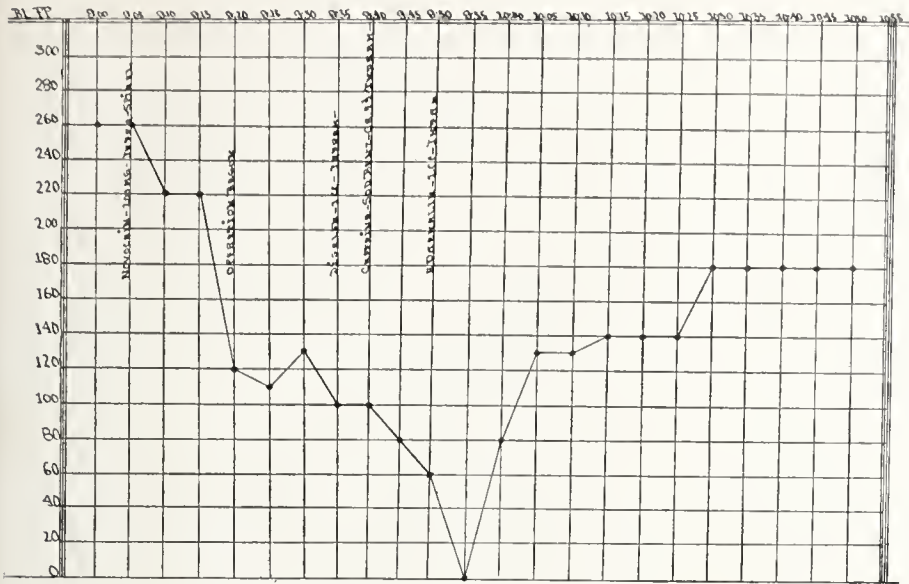
the spinal fluid cannot be relied upon to raise or lower the level reached by the introduced novocaine, control of the height of anesthesia must be secured in some other way. The early workers attempted to control the height of anesthesia by using a solution of specific gravity different from that of spinal fluid and tilting the body; thus with a heavy solution they assumed that by raising the upper part of the body to a certain angle they would hold the novocaine to a certain level low in the body, whereas by lowering the head and shoulders with a heavier solution, they would obtain a proportionately high anesthesia. With a solution of lighter specific gravity, the reverse procedure was supposed to be true. These attempts at controlling the height of anes-

Hospital No. 14783. Vaginal Hysterectomy. Anterior-Posterior Colporrhaphy.



Graphic Chart No. 4—Illustrating 2½ hours' duration of anesthesia obtained by 300 milligrams of novocain and effects of overdose of ephedrin. Ninety milligrams given by mistake for anesthesia to umbilical region where only 50 milligrams are required.

Hospital No. 1035. Supra-Pubic-Prost atectomy. Costal Margin Anesthesia.



Graphic Chart No. 5.—This case illustrates a common misunderstanding. The operator obtained a high anesthesia up to the costal margin for complete relaxation, but did not believe any preliminary ephedrin was necessary, as the man's 'normal' pressure was 260 millimeters systolic. The result is a complete collapse of the splanchnics with the pressure dropping to zero and gradual recovery after both operator and patient had received a severe shock.

thetia by lighter and heavier solutions of novocaine combined with posture of the patient were not entirely satisfactory.

FACTORS CONTROLLING HEIGHT OF ANESTHESIA

Upon what factor, then, does height of anesthesia depend? The answer is apparent if we review the work of Le Filleatre during the World War. He obtained a general anesthesia of the entire body by performing a spinal puncture low in the fifth lumbar interspace, withdrawing a large amount of spinal fluid, thirty cubic centimeters, mixing with the anesthetic agent and reinjecting with great force. After reinjection, new fluid was again immediately withdrawn and reinjected several times. In this manner he produced a complete anesthesia so that soldiers with multiple wounds in different parts of the body could be attended to by several surgeons at the same time. This work shows that the height of anesthesia can be raised by diffusion of the novocaine in the spinal fluid by a process of mixing.

We can deduce from this work and from our own experience that for all practical purposes, *the height of anesthesia is directly proportional to the volume of cerebrospinal fluid used as a diluent of the novocaine crystals.* Although admitting that other factors may influence the diffusion of novocaine in the spinal fluid, such as speed of injection, differences in specific gravity in solution, gravity as influenced by the position of the patient, and cerebrospinal fluid pressure, our experience has convinced us that for simplicity and the practical application of controlling height of anesthesia, we need only consider the amounts of spinal fluid we have withdrawn to mix with our crystals of novocaine.

These amounts are determined by the known capacity in cubic centimeters in the spinal canal at different levels. This contribution we owe to Pitkin's⁸ recent excellent work, and although we have abandoned his technique in other details, we have on the average confirmed his findings as to the capacity of the spinal canal at various levels with slight variations.

Thus the capacity of the spinal canal from the sixth thoracic vertebra to the lower lumbar region is about eight to ten cubic centimeters. If we desire to obtain anesthesia up to the nipples, we perform a low lumbar puncture and withdraw and reinject ten cubic centimeters of spinal fluid into which novocaine has been dissolved. In other words, we dissolve, or as Pitkin says, expand our novocaine into ten cubic centimeters of spinal fluid, and

this will give us an anesthesia to the nipple line. If anesthesia is only desired to the umbilicus, we dissolve our novocaine with only five cubic centimeters of spinal fluid; if for the inguinal region, we dissolve or mix, as Pitkin says, with only two cubic centimeters, and if anesthesia of only the perineum, withdraw one cubic centimeter spinal fluid, and reinject slowly the given dose of novocaine. (See chart No. 3.)

DURATION OF ANESTHESIA

The problem of controlling the duration of anesthesia is relatively simple. For years it has been thought that one hour is the maximum time for spinal anesthesia. This is because the dosage of novocaine, heretofore commonly given, varied from one to one-half grains, or approximately 100 milligrams. We are unable to find out on what basis this arbitrary dosage had been determined. Elsewhere in the body we often inject from 500 to 1500 milligrams of novocaine in the form of one-fourth to one-half per cent solution, and there is no reason why larger doses of novocaine cannot be employed in the spinal canal, and if this is done, the anesthesia will be prolonged accordingly. We believe the important factor controlling the duration of anesthesia is simply the dosage of novocaine; 100 milligrams, or one and one-half grains, gives approximately one hour; 200 milligrams gives approximately two hours; 300 milligrams approximately three hours, and with our newer knowledge of spinal anesthesia we can safely give these larger doses of novocaine intraspinally. (See chart No. 4.)

BARBITAL TO COMBAT TOXIC IDIOSYNCRASY

Recognizing the fact that occasionally we may encounter a patient who has a toxic idiosyncrasy to the cocaine derivatives, we have adopted the routine use of the administration preoperatively of some barbitol derivative. This drug has been

shown to be an antidote to cocaine poisoning. Moreover, the preliminary administration of such a drug about an hour before the patient enters the operating room has the effect of quieting the apprehensiveness of one about to undergo an operation without deprivation of consciousness.

Based on the principles advanced in this paper, we are submitting a chart of a simple technique which should produce a safe and controllable form of spinal anesthesia. With this simplified technique, the application of a spinal anesthesia is made possible for any operative procedure involving any part of the body from the toes to the neck. With this technique, we may produce the same anesthesia as can be obtained by the methods known as splanchnic, paravertebral, sacral and epidural anesthesia, but with the advantage over all of these methods that this technique is simpler, more certain, and quicker in producing anesthetic facts.

UNIVERSAL APPLICABILITY QUESTIONED

Although our purpose in this paper is to explain the theory underlying spinal anesthesia, we wish to emphasize a few salient features, based on our experience with five hundred patients. This form of anesthesia is not applicable to every patient despite enthusiastic claims of many centers. There are certain people who psychically are unfit for any operative procedure except one under general narcosis. To force spinal anesthesia on such patients only brings a valuable method into disrepute.

We believe children under the age of twelve fall within this category and although we have successfully administered this anesthesia to many children, we believe it is unwise and in the last year have made a rule that children be given general anesthesia only. The frightened, crying child is not a good advertisement for any form of local anesthesia.

PRECAUTIONS ADVISABLE

The presence of a competent anesthetist is of the utmost importance. In cases of prolonged operations, while the anesthesia does not wear off, the patient may become physically and mentally tired and require a light gas anesthetic for this reason, toward the completion of the operation.

The maintenance of the patient's normal blood pressure, even though that blood pressure be abnormal, is the constant object in this technique. (See graphic chart No. 5.) A patient with a systolic pressure of 220 upon whom a cholecystectomy is to be done must receive seventy-five milligrams of ephedrine, just the same as one whose systolic pressure is 110. Our object is to prevent the wide swings in blood pressure which formerly accompanied all spinal anesthesia cases.

Failure to obtain anesthesia is usually due to displacement of the needle during the process of withdrawal of spinal fluid and reinjection after the novocaine crystals are dissolved. The needle may inadvertently be pushed through the anterior portion of the dura and the solution deposited

extra-durally. This occurred in about 0.5 per cent of our cases.

Our incidence of headaches has been negligible and we believe no more severe than the headaches patients occasionally complained of following general anesthetic and operative procedures. Headache is caused by the use of the old-fashioned large spinal needle, which permitted leakage of the spinal fluid after the tap. We think the less foreign substance is introduced into the spinal canal, the less the chance for headache due to an irritative meningismus. This is one reason why we have discarded the use of spinocain in favor of pure crystals of novocaine or the French neocaine dissolved only in cerebrospinal fluid.

In our series of five hundred cases we have had no complications or untoward results. In conclusion we offer our graphic chart, which illustrates the theory and practice of a simplified, controllable form of spinal anesthesia.

450 Sutter Street.

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AMEBIC ABSCESS OF THE LIVER—ITS TREATMENT

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DISCUSSION by H. H. Searls, M. D., San Francisco; Clarence G. Toland, M. D., and William P. Kroeger, M. D., Los Angeles; Alfred C. Reed, M. D., San Francisco.

AMEBIC abscess of the liver is often thought of as something necessarily tropical and distant, and not likely to be met in temperate zones. An examination of the autopsy and hospital records in the United States will show that this complication of amebiasis is not uncommon and will convince us that it must be kept in mind when considering pathological conditions of the right hypochondriac region.

Years ago about 20 per cent of the persons suffering from amebic dysentery would get abscesses, but this proportion has been greatly reduced in localities where proper treatment with emetin, ipecac, or other efficacious drugs could be given.

Ludlow says abscess is easily preventable; that he has not seen the complication in properly treated cases.¹ I do not share his enthusiasm, but believe the number of abscess cases can be greatly reduced by proper treatment of the dysentery. Cases have been reported long after the dysentery has disappeared; in one case as long as thirty years.²

We must not forget that abscess may occur without any previous history of dysentery or even transient diarrhea, the so-called primary hepatic amebiasis; the amebae getting into the blood stream and liver without doing enough damage to the intestines to cause symptoms.

INCIDENCE

During the last five years the General Hospital of Los Angeles has had an average of twenty and six-tenths admissions per year for amebic dysentery and nine cases per year for liver abscess. Much the same ratios obtain in the remainder of the United States. Therefore we cannot disregard its presence and should be ready to treat it with adequate surgical procedures.

Recent reports from different parts of the United States, of surgical experiences with abscess, indicate that the attending physicians were taken somewhat by surprise and also show that the patients did not have the benefit of the best surgical procedures. Following our early years in the Philippine Islands and Panama a technique was evolved that gives excellent results and, until something better is found, should be followed in cases of abscess or suspected abscess.

DIAGNOSIS

The question of treatment is inseparable from that of diagnosis, and they must be considered together. The diagnosis may sometimes be made, with little chance of error, from history, signs, and symptoms, but it is often necessary, especially in the early cases, when we can do the most good, to put a trocar into the liver in an effort to locate the pus. If it is done without a preliminary laparotomy, the point of election is in the midaxillary line through the eighth interspace. From this point one-half the liver can be searched. The epigastric route also may be used. A point of tenderness often determines the point of puncture. The needle should not be more than three and three-quarter inches long. The x-ray is of assistance. I have described this method of puncture only to condemn it, except in cases where the liver and abdominal wall are adherent and the location of the abscess so evident that a needle puncture could not miss it and soil the general abdominal cavity.

ASPIRATION AND OPEN OPERATION METHODS

Surgeons have always been divided as to the best method of treating liver abscess. One school, in which most British and European surgeons are found, believes that liver abscess should be drained by aspiration and that by this procedure and the exhibition of emetin hypodermically or ipecac orally, operation will be unnecessary in most cases. A. R. Neligan says:

"There is no doubt that both for the patient and the surgeon, the aspiration treatment is preferable in every way to open operation for the great majority of liver abscesses. I feel, indeed, that, with one exception, incision of a liver abscess is as much to be avoided as incision into a tuberculous abscess." "The exception mentioned above is the abscess in the epigastric or hypochondriac regions, which presents no definite evidence of having formed adhesions with the parietes. Here it is safe to incise the abdominal wall, pack off the peritoneal cavity, and drain."³

K. K. Chatterji successfully treated thirteen cases by aspiration, emetin injections and ipecac by mouth. In two, the aspirations had to be repeated.⁴ Rogers and Wilson gave like reports.⁵ A. I. Ludlow says from an experience of one hundred operations that there is little danger from aspiration and that, although it sometimes must be followed by open operation, it gives a gain in time and strength.¹ S. N. Hayes says: First, for all patients with the liver enlarged to two-finger breadths below the costal margin, give emetin injections alone. He gives it in two or three courses of eight days, with one week between. After the first course the patients are usually well enough to be attended as out-patients. Second, in patients with a greater enlargement or a definite fluctuating swelling, or in those who resist emetin alone, add aspiration to the emetin. Third, for patients who fail to respond to the above, use emetin and siphon drainage.⁶ Several other observers have reported patients with emetin alone. Some after aspiration use emetin, ipecac, or quinin solution to irrigate the cavity.

The opponents of open operation give the mortality rate as over 50 per cent in open operation as compared to 14.4 per cent with repeated aspirations and medical treatment.⁷ As will be shown later, this mortality rate for open operation is much too high; in the hands of competent men it is lower than the rate quoted for aspiration. Most American surgeons believe open operation to be the best method.

Exploration by needle, without preliminary laparotomy, is dangerous. One cannot thoroughly explore the liver in this way without great danger to the large vessels, the gall bladder, and other abdominal organs. If done through the chest wall there is danger to the pleura and lung. Added to those dangers is the greater one of infection. Strong says 50 per cent, and Rogers states 14 per cent of abscesses contain bacteria. I believe Strong's 50 per cent is nearer correct than Rogers' 14 per cent. Besides the dangers of the method, it is inefficient and not to be compared with palpation of the liver by the whole hand introduced into the abdomen, using the needle for investigating any suspicious spots. An incision in the abdominal wall, either parallel to and just below the costal border, or vertical may be used. Rhoads described the feeling of abscess as "resistant tense bogginess."⁸ This palpation of the whole liver gives us our best chance to find small and multiple abscesses and those that

are located on the superior posterior aspect at the peritoneal reflection and near the vena cava. Many abscesses have been missed in this location.

TREATMENT PROCEDURES

After locating the abscess it may be isolated by packing and then opened, or it may be opened later after adhesions have formed about the packing. Sometimes shrinkage occurs, so one may leave the needle or trocar in place surrounded by packing as a guide to the subsequent opening.

It is often impossible to drain the abscess through the abdominal incision and it is then necessary to approach from another direction. After locating the abscess by intra-abdominal palpation, one can see just where it lies in relation to the ribs and determine which of the latter should be resected to give direct approach. Those cases where liver dullness extends downward and those of left lobe abscess are most favorable for drainage through the anterior abdominal wall.

After marking the site of the abscess the abdominal wound is closed. Should it be below the ninth rib, in or anterior to the midaxillary line, one may do a subpleural operation by resecting three or four inches of the tenth rib, and go through the diaphragm below the pleural reflection. Or one may perform the transpleural operation by going through both layers (parietal and diaphragmatic) of the pleura and diaphragm to reach the abscess. In such procedure we must prevent pneumothorax and empyema if possible. The best way to prevent both is, I believe, as follows: Resect subperiosteally four inches of the rib best suited to drain the already located abscess. Select the lowest rib possible: get as far down into the acute lower pleural angle as you can, for it is there easier to approximate the chest wall and arching diaphragm. If this approximation seems difficult, resect another rib to make the wall more flaccid. While an assistant makes the approximation, by pressing from the outside, cut through the chest wall, parietal pleura, diaphragmatic pleura, diaphragm and parietal peritoneum, and clamp together the edges of all these structures to prevent the entrance of air into the pleural cavity. Sew the edges all around and remove the clamps. The mark of the previous needle puncture on the surface of the liver is now seen, and the abscess opened. Some operators instead of opening immediately, leave the needle in the abscess, pack all around with gauze, and wait for adhesions to wall off the exposed area. Some cases permit this delay, some do not. If hemorrhage from the liver should be great, pack the cavity with gauze, using a vaginal speculum or uterine packer.

Although I do not consider it the best surgical procedure, one may do the transpleural operation without preliminary intra-abdominal manual examination in two stages. After resecting the rib and going through the pleura, diaphragm, and parietal peritoneum, as described above, pack and wait for the adhesions to form about the packing down to the liver. Then explore with

the needle every day until the abscess or abscesses are located. A soft rubber tube for two or three days provides best drainage.

Sometimes two or more cavities, lying close together, may be converted into one and drained through one opening. With multiple abscesses the chances of recovery are greatly reduced. One may successfully drain three separate abscesses but seldom four or more. When they are located between the layers of the coronary ligament, in the portion of the liver not covered by peritoneum, they are most difficult to locate and drain, and are usually missed.

PROGNOSIS

After open drainage operation the prognosis is good. Complete recovery occurs unless too much liver tissue has been destroyed.

In a period of ten years before the year 1915, the Surgeon-General of the United States Army reported two hundred and one operations for abscess, with twenty-five deaths; or a rate of 12.4 per cent, which is lower than that claimed by the advocates of aspiration.⁹ In good hands the open operation gives the best immediate results and reduces very much the chances of overlooking a small abscess. It also allows examination of the coexisting conditions in the abdomen.

In treating these cases or in making certain the diagnosis in suspected cases, I would strongly urge that the abscess or abscesses be located by palpation with the whole hand introduced through a laparotomy wound before any effort is made to blindly search the liver by needles or trocars. One might, on first thought, consider that such preliminary laparotomy would add an unwarranted surgical procedure and increase the mortality rate in treating these cases, but such is not so. The added accuracy in locating abscesses, the lessened chance of overlooking small ones and those near the coronary ligament, and the increased safety in draining pus, often containing pyogenic bacteria, through the peritoneal and pleural cavities make this a necessary step in the operation, except, as mentioned before, when the liver and abdominal wall are adherent and the location of the abscesses certainly known.

CONCLUSIONS

1. Although amebic abscess of the liver is met much less frequently since the advent of emetin, it is not uncommon in the United States and we must be prepared to treat it properly.
2. Medical treatment by ipecac, emetin, and other drugs, prevents many abscesses, but it is not sufficient treatment after they have formed.
3. Blind exploration and aspiration by needle is inefficient and dangerous.
4. Location of the abscess or abscesses, preliminary to evacuation, should be made by intra-abdominal palpation by the whole hand.
5. The abscess cavity or cavities may be drained most advantageously by abdominal, subpleural, or transpleural routes after such accurate localization.

6. Increased accuracy in locating and subsequently draining abscesses more than compensates for added surgical trauma.

Moore Building.

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DISCUSSION

H. H. SEARLS, M. D. (University of California Hospital, San Francisco).—Doctor Kilbourne's article is apparently based on a considerable experience in this rather unusual condition. It would appear to me that his conclusions are sound for the most part. Certainly exploration of any condition within the abdominal cavity by means of a needle is a dangerous and rarely advisable procedure. It would seem, however, that when a single amebic abscess of the liver is located in the right lobe, and when it is sufficiently large to permit of definite localization by physical examination and x-ray, exploratory laparotomy might be unnecessary. The abscess may be reached by the transpleural route or by the approach suggested by Oelsner and Mather. These men suggest excision of the right twelfth rib and approach beneath the diaphragm to the unperitonized surface of the liver, securing drainage without entering either the peritoneal or pleural cavity. If the transpleural route is decided upon, it is certainly much safer to develop it in two stages, first resecting the rib and suturing the costal to the diaphragmatic pleura, packing the wound, waiting forty-eight hours and then proceeding through the fused pleural layers and the diaphragm to the liver.

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CLARENCE G. TOLAND, M. D., AND WILLIAM PAUL KROGER, M. D. (1930 Wilshire Boulevard, Los Angeles).—In Doctor Kilbourne's very excellent paper on amebic abscess of the liver he mentions the fact that in many cases the occurrence of the abscess could be prevented by instituting proper treatment against the amebic intestinal infection.

It might be well to stress this point when we consider that approximately 90 per cent of these abscesses are preceded by an intestinal ulceration, allowing the amebae to slip into the portal circulation and thus lodge in the liver capillaries. A necrobiotic action is exerted upon the hepatic cells, softening and liquefaction occur, and an abscess is the result.

The ulceration is relatively a late manifestation of the amebic process and it seems logical to assume a case properly treated in its incipiency will probably not proceed to the ulcerative stage.

The amebae seem to have a predilection for the sigmoid colon, an area easily accessible to hot colonic irrigation; a procedure that frequently will be found a valuable adjunct to the emetin and other drugs used. The temperature of the water used for the irrigation must be over 47 degrees centigrade, for it has been definitely shown the *Ameba histolytica* cannot survive at this temperature.

The early diagnosis of amebic abscess of the liver is not so readily made, but the condition must always

be suspected in the presence of the triad of fever, enlargement of the liver, and pain. Add to this the discovery of the parasites in the stool, and an exploratory puncture of the liver is justifiable.

The technical features of the puncture as outlined and advocated by Doctor Kilbourne may seem a bit radical to some, but his method most certainly eliminates the possibility of error. The location and size of the abscess or abscesses is definitely determined, and the incision and drainage can thus be accurately planned. An abscess properly evacuated usually closes. It is well to remember that occasionally an autopsy reveals a large undisturbed amebic abscess lying in close proximity to a small one that had so hopefully been incised by the surgeon.

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ALFRED C. REED, M. D. (384 Post Street, San Francisco).—The paper by Doctor Kilbourne is refreshingly practical and at the same time comprehensive. A few points under this subject have been emphasized in my own experience.

The only known portal of entry of *Entameba histolytica* into the human body is through the wall of the intestine. The presence of *Entameba histolytica* in the body anywhere, therefore, presupposes a lesion of the intestinal wall, nearly always in the colon. The pathology associated with amebic colonization is the same, whether the focus is in the mucosa, the submucosa, the liver, or elsewhere. A small sterile abscess, at first pin-point or microscopical in size, forms and tends to enlarge or discharge in the line of least resistance. This leads to open ulceration of the colonic mucosa or to massive abscess where discharge is not secured. It is therefore probable that so-called amebic hepatitis is actually a process of multiple, minute abscess formation. Secondary bacterial infection is prone to follow. The result is that the effectiveness of emetin and other amebicidal drugs is proportional to the amount of space occupied by the abscess, to the accessibility of the amebic colonies, to the mass of contained material, and to the variety and quantity of bacterial infection.

Not infrequently it happens that amebic abscess of the liver occurs when no amebae can be found in the stools. It frequently happens that amebic abscess occurs in a patient who has never had dysentery or even diarrhea. I have described "nondysenteric amebiasis" as the predominant type in temperate climates. The question is far from settled as to whether tendency to abscess and dysentery is inherent in certain races or species of ameba, or whether this tendency is a matter of host peculiarity or change in virulence of the ameba due to rapid passage from host to host or other causes.

In the matter of treatment of liver abscess, I have seen numerous cases in Europe, Egypt, and India treated by amebicidal drugs and aspiration of abscess contents. So uniform are the good results and so decreased the risks that this procedure seems to me decidedly the method of choice.

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DOCTOR KILBOURNE (Closing).—I believe laparotomy is necessary whether the abscesses are single or multiple, except when the liver is adherent to the abdominal wall, thereby making needle puncture relatively safe. Even then one must guess at what is happening in the remainder of the liver.

The fact that many cases are successfully treated by aspiration does not militate against the whole hand exploration, for with the latter method many abscesses will be found that would be missed by simple puncture without laparotomy.

An occasional patient saved is the reward for the extra operative work. It is most distressing to find at autopsy an unopened abscess or abscesses that might have been drained had the whole liver been palpated.

CAROTINEMIA*

REPORT OF CASES

By HIRAM E. MILLER, M. D.
San Francisco

DISCUSSION by George F. Koetter, M. D., Los Angeles;
C. Ray Lounsberry, M. D., San Diego.

THE lipochrome pigments—carotin and xanthophyll—when taken into the human body in abnormal amounts, may cause a peculiar yellow discoloration of the skin. It is frequently seen in diabetic persons, probably due to a diet rich in vegetables and not associated with a disturbed metabolism. This color change is generally harmless but it is of some diagnostic interest.

It has been shown that carotin is the pigment present in cows' milk, in the blood of horses, in egg yolk, and in the skin of chickens. The lipochrome causing the discoloration of the skin in man is chiefly from carotin, while in animals it is from xanthophyll. These pigments are found in carrots, most green vegetables, squash, skin of oranges, milk, and egg yolk.

In 1904, Von Noorden¹ described the clinical characteristics of carotinemia and named it "xanthosis diabetica," as he believed that it occurred only in diabetic individuals. Van den Bergh and Snapper² in 1913 demonstrated the presence of carotin in normal human blood serum. They also found comparatively large amounts of it in the serum of diabetics with a yellowish discoloration of the skin. In 1919 Burger and Reinhart³ spectroscopically demonstrated carotin in the serum of diabetic patients on a diet rich in vegetables. Hess and Meyers⁴ in the same year, first used the term carotinemia in reporting examples of the disorder in children. The Japanese literature⁵ contains reports of many cases in natives from a diet rich in oranges and squash. In 1926 Greene and Blackford⁶ reported a series of cases from the Mayo Clinic in non-diabetic individuals, most of whom were suffering from some form of neurosis. Conner⁷ of the department of pathology, University of California Medical School, in 1928 published the results of his experimental and biochemical studies on these lipochromes. Rabinowitch⁸ in the same year reported fifty-nine cases of carotinemia in a series of 1014 diabetic patients. He stated that he believed that patients with this discoloration had a less favorable prognosis than other diabetics. Wise⁹ in December, 1929, reported a case of carotinemia with excellent colored photographs.

CLINICAL MANIFESTATIONS

The yellow discoloration of the skin is most marked on the nasolabial folds and on the palms and soles. In some individuals the skin of the entire body may be involved, but this generally remains for only a few days. On the hyperkeratotic areas and wherever the sebaceous glands are

most numerous, the pigment is retained in greater concentration and for longer periods of time than elsewhere. The pigment is of a lemon, ochre, or canary yellow, color. The sclera are not pigmented in carotinemia while in true icterus they are always involved. There is never an associated pruritis in carotinemia while it is frequently found in jaundiced individuals.

HISTOPATHOLOGY AND CHEMICAL ANALYSIS

Histopathological examination of the skin demonstrates the pigment to be in the upper layers of the epidermis and especially in the horny layer. It has also been found around the sebaceous glands. The skin does not show any other abnormalities.

The blood serum in carotinemia is yellow or orange colored while in jaundice it is brown or slightly green. To test for carotin—3 cubic centimeters of 95 per cent alcohol and a like amount of petroleum-ether are added to three cubic centimeters of blood serum and centrifuged. If the pigment is carotin it passes into the upper layer of the petroleum-ether, giving it a yellow color, while the bile pigments will remain in the alcohol. If a quantitative test is desired the upper layer may be poured off and compared with the bichromate standard.

In the past year I have observed three non-diabetic patients with carotinemia. A short resumé of their findings is of interest.

REPORT OF CASES

CASE 1.—A married woman, aged 28 years, had suffered for over a year with asthma and a severe, generalized allergic dermatitis. She had been placed on a diet rich in vegetables by her physician and frequently ate a raw carrot salad. She periodically exhibited a diffuse canary yellow color to the skin of the entire body. The sclera were always clear. Physical examination and laboratory findings were all within normal limits except for the presence of an orange colored pigment in the blood serum that was entirely extracted by petroleum-ether.

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CASE 2.—A woman 48 years of age was on a voluntary vegetable and fruit diet for an ill-defined gastric complaint. She had a canary yellow discoloration of the skin on the sides of her neck, over her forehead, and on her palms and soles of three months' duration. The sclera were of a normal color. She stated that her family physician had told her that the yellow color was due to gall bladder disease and that an operation might be necessary to correct it. The blood sugar content was 0.10 per cent. Petroleum-ether dissolved a yellow pigment that was present in the blood serum.

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CASE 3.—A woman 38 years of age in apparent good health, ate many vegetables because she liked them. She was particularly fond of carrots and spinach. Her palms and soles had been of a yellowish brown color for the past two years. The coloring on the palms was a source of considerable embarrassment to the patient. Routine physical examination did not reveal any abnormalities. The sclera were clear. Bile pigment could not be demonstrated in the urine. The yellowish pigment in the blood serum was extracted by petroleum-ether. The blood sugar was 0.085 per cent.

COMMENT

The first patient in this report with a severe generalized, allergic dermatitis, developed a yellow

* From the Department of Dermatology, University of California Medical School.

* Read before the Dermatology and Syphilology Section of the California Medical Association, at the Fifty-ninth Annual Session, Del Monte, April 28-May 1, 1930.

low discoloration of the skin of the entire body while eating raw carrots and other vegetables. The second patient, with an ill-defined gastric complaint, was diagnosed as having gall bladder disease because the yellow color of her skin was thought to be due to bile pigments. The third patient sought medical care because of the embarrassment of the dirty, yellow color of her palms.

Carotinemia has been observed more frequently in diabetic patients than in non-diabetic individuals. Some observers believe that its presence in a diabetic suggests an unfavorable prognosis. It probably is due, however, to a diet rich in vegetables and is not of metabolic importance. Nevertheless, diabetes should be suspected in all patients with carotinemia.

Carotinemia is of little clinical significance when the diagnosis is definitely established. The presence of clear sclera and the absence of bile pigments in the urine will exclude jaundice. The peculiar yellow color to the skin, a diet rich in vegetables, and an orange colored pigment in the blood serum that is dissolved by petroleum-ether will make a diagnosis of carotinemia.

384 Post Street.

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DISCUSSION

GEORGE F. KOETTER, M. D. (812 Medical Office Building, Los Angeles).—Carotinemia and many other pigmentary disturbances of the skin are of interest to the dermatologist. Where syphilis of the liver and spleen accompany carotinemia, the differential diagnosis offers an added problem. Mild, periodic jaundice is suggestive of syphilitic hepatitis and a slowly increasing jaundice may originate from a malignancy. A thorough history with special emphasis on diet is of importance in establishing a diagnosis of carotinemia. Carotinemia presents an interesting diagnostic problem to the internist and dermatologist.

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C. RAY LOUNSBERRY, M. D. (1111 Medico-Dental Building, San Diego).—Doctor Miller has ably presented the subject of carotinemia to us. I was especially interested because I recall a series of two cases which present the same clinical pictures.

The first case was that of a man who lived practically for thirty days on oranges, combined with raw vegetables. In the list of vegetables prescribed by his family physician were carrots. Practically every day he would eat an immense carrot salad. Often-

times he would not only drink several glasses of orange juice a day but would eat two or three oranges, peels and all. According to his history, on the fifteenth day of that orange fast, he noted a peculiar yellowish discoloration appearing on his fingers and toes, which spread later to his palms and soles, finally extending up his arms and legs. He complained of no other symptoms except the peculiar disfiguring yellowish discoloration which seemed to be in the superficial layers of the epidermis.

The other case was a diabetic who had been placed upon a vegetable diet. Cooked carrots was his favorite dish. He presented a very mild case of nasolabial discoloration only. Clinical picture showed carotin which was light yellowish in color. Jaundice has been ruled out by means of the classical differentiation. I often wonder whether or not there is any relationship existing between the destruction of the pancreatic islands in the pancreas which is found in both diabetes and carotinemia.

DESTRUCTIVE "CALCULUS DISEASE"*

By FRANKLIN FARMAN, M. D.
Los Angeles

DISCUSSION by Henry A. R. Kreutzmann, M. D., San Francisco; W. B. Dakin, M. D., Los Angeles; William E. Stevens, M. D., San Francisco.

THESE observations are based on a comparative study of thirty selected cases of nephrolithiasis. They have been classified and grouped according to the type of condition presented and are based mainly upon the location of the calculi and the associated pathology.

GROUPING USED IN THIS STUDY*

Group 1.—This includes ten patients with uncomplicated nephrolithiasis each with a single calculus found lodged in the kidney pelvis or calices. The average age was 42.4 years. By sex, there were six females, described as fat—phlegmatic; and four males, described as muscular—vigorous.

Group 2.—This includes ten patients with nephrolithiasis complicated by such conditions as pyonephrosis, pyelonephritis, marked hydronephrosis, etc. The average age was 48.3 years, and included eight females and two males. For the most part the patients in this group were described as frail, thin, nervous, probably the result of long-standing, wasting illness.

Group 3.—This includes ten patients with ureteral calculi which, though perhaps a separate subject in itself, is of great value in a comparative way when considering "calculus disease." As was to be expected, here a lower average age was found, 36.8 years; the condition occurred equally as often in males as in females; and the types were those often referred to as muscular—vigorous.

COMMENT ON SYMPTOMS AND SIGNS

As a rule the pain or renal colic and the tenderness were found on the side affected; either in the right or left renal area and down along the

* Read before the Urology Section of the California Medical Association at the fifty-eighth annual session, May 6-9, 1929.

corresponding ureter. Though the kidney at times was palpable on the involved side, we did not often consider it enlarged in cases of uncomplicated renal or ureteral calculi. However, many times muscle spasm prevented satisfactory kidney palpation. In complicated nephrolithiasis, a definite kidney enlargement or mass formation was found in seven out of ten patients.

It was noted that there was a greater degree of bladder inflammation in complicated calculus disease, very little cystitis as a rule in uncomplicated nephrolithiasis, and usually a moderate degree associated with ureteral calculi. The ureter was totally obstructed or blocked nine out of ten times in the ureteral group, only once in the kidney pelvic group, and three out of ten times in advanced "calculus disease."

It was not possible to obtain reliable pyelograms or ureterograms in cases of ureteral calculi, due to blockage of the lumen and back flow of the opaque media. In the other cases of the series, satisfactory pyelograms were obtained showing usually some degree of hydronephrotic dilatation when a solitary stone was present, and marked hydronephrosis, pyonephrosis or kidney destruction in cases of advanced nephrolithiasis. The plain roentgenograms were positive except in one case of ureteral calculus, or in 93.4 per cent of the cases studied.

The number of pus cells and red blood corpuscles found upon urinalysis gives, in a relative way, an index of the activity of the "calculus disease" process. Upon the basis of four plus (+ + + +), the lesser number of leukocytes was found in the ureteral calculi group, about two plus (+ +) in uncomplicated kidney calculi, and a large amount (+ + + +) in complicated or advanced nephrolithiasis. As regards blood cells, it was noticed that hematuria occurred equally as frequently in cases of ureteral as in cases of kidney pelvic calculi, and rarely in cases of advanced "calculus disease."

Bacterial infection of the urine is frequent in complicated nephrolithiasis, and in this group of ten cases the *B. coli* was cultured six times and the staphylococcus twice. The urine was infected in only two instances of early kidney calculus, and in none of the ureteral calculi group, although cultures were reported in only three cases of the last group.

It was found that the kidney function was decreased about one-half on the affected side in cases of uncomplicated renal calculi. The average phenolsulphonephthalein output in a fifteen-minute interval was 5.1 per cent from the involved kidney and 12.1 per cent from the noninvolved kidney.

In the advanced group of "calculus disease" cases the function of the affected kidney was practically nil. Using the same phthalein technique, an average dye output of 1.4 per cent was obtained from the damaged kidney, and 16.4 per cent from the good kidney. The kidney-function comparisons of the ureteral calculi group are not given.

A study of the blood picture showed a normal red blood count and hemoglobin estimation in uncomplicated nephrolithiasis with a variable slightly increased leukocyte count during acute renal colic attacks. In the cases of advanced "calculus disease" there invariably was present secondary anemia and a persistent leukocytosis averaging 13,500.

The duration of symptoms, referable to the urinary tract, varied in the entire group from a few weeks to ten years or more. The symptoms occurred early in cases of ureteral calculi, were present on the average of one year in uncomplicated renal calculi, and from one to ten years in advanced nephrolithiasis. This goes to show that small migratory ureteral calculi produce characteristic symptoms early, that the symptoms of renal pelvic stone may be insidious and slow, and that the complications of nephrolithiasis show extreme chronicity, and often a silent metamorphosis.

TREATMENT

In the first group pyelotomy for stone was carried out six times,¹ pyelonephrotomy one time, nephrotomy once, and in the two remaining cases operation was refused by one, and in the other surgery was deemed inadvisable.

In the second group of complicated nephrolithiasis, primary nephrectomy was performed three times, secondary nephrectomy in three instances² (following previous nephrotomy or pyelotomy), nephropyelotomy twice, complete nephroureterectomy in one patient in whom two stones were lodged at the vesical juncture, and in the one remaining patient³ operation was refused because of fear induced by a previous surgical failure.

In the ureteral calculi group the open operation of ureterotomy was performed three times, and in the seven other cases cystoscopic manipulations with ureteral dilatations were required on an average of two times before the stone was passed.

PROGNOSIS

In this group of twenty surgical operations for kidney calculi, the mortality was 5 per cent, the one death resulting from renal insufficiency following nephrectomy in a woman sixty years of age.

Of necessity the prognosis must be guarded in the surgical treatment of advanced nephrolithiasis because in this group one is dealing with the serious complications of pyonephrosis, pyelonephritis, large and infected hydronephrosis, perirenalitis, and oftentimes other remote pathology. Likewise the added risk of advanced age, secondary anemia, and malnutrition must be considered.

No deaths or surgical complications occurred in the group of operations for pelvic or ureteral calculi.

¹ Includes one case operated by Dr. K. C. Gummes.

² Includes one case operated by Dr. T. O. Boyd.

³ Case of Dr. T. S. Carey, showing renal calculus formation following spinal cord injury.

I consider the surgical treatment of uncomplicated kidney and upper ureteral calculi safe, sane, and advisable early.

As regards calculi in the lower ureter, a proper interval should be allowed for the voluntary passage of the stone, aided by suitable ureteral instrumentation, but when it appears likely that this will not be accomplished, then at an early date one of the open operations for calculus in the lower ureter should be performed.

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DISCUSSION

HENRY A. R. KREUTZMANN, M. D. (2000 Van Ness Avenue, San Francisco).—Doctor Farman has given a very interesting survey of calculi in the urinary tract. A mortality of 5 per cent is very low where operations on pyonephrotic kidneys are included in this series.

Nephrotomy *per se* is a serious operation. It is greatly complicated when dealing with a pyonephrotic kidney or an associated pyelitis. Because of this infection, a secondary hemorrhage is more likely to occur. Whenever possible the calculi should be removed through a pyelotomy incision. Where the kidney pelvis is intrarenal and not hydronephrotic, there is no choice and a nephrotomy must be performed.

The question of drainage of the kidney pelvis through the nephrotomy wound with a small rubber catheter is still not settled. Some urologists advocate this method, whereas others say it increases the possibility of a secondary hemorrhage.

It is always advisable, where either ureteral or renal stone is associated with infection, to reduce the infection to a minimum by renal lavages and the use of an inlying ureteral catheter before operation.

Doctor Farman is correct in not waiting too long for a ureteral stone to pass into the bladder. It is a difficult matter to say just when to operate. If the calculus does not move, if a beginning hydro-ureter and hydronephrosis is detected, or a pyelitis sets in, one should not hesitate to operate. If, however, the stone gradually moves toward the bladder we can afford to wait for some time.

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WIRT B. DAKIN, M. D. (756 South Broadway, Los Angeles).—It seems to me, after careful study of these cases, that in arriving at a conclusion it is best not to take any chance; the best action taken is no action at all. I have in mind a patient about three and one-half years ago in whom there were violent bladder symptoms. A large stone and enlarged prostate were also present. There was a stone in the kidney, and after carefully checking that two or three times, waiting one-half hour for 'phthalein to come through, we found that what return we did get was more from the kidney that had the stone than from the other one that was supposed to be better. Doctor Scholl was in the hospital that morning and I asked him to see the patient. He told me to leave the kidney stone alone, and the man is still alive.

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WILLIAM E. STEVENS, M. D. (870 Market Street, San Francisco).—Doctor Farman is to be congratulated on the excellent results obtained in his interesting series of cases.

As in prostatic hypertrophy, preoperative and post-operative treatment is important when surgical removal of renal and ureteral calculi is required. The kidney infection should receive appropriate treatment before, and, if necessary, after operation, and ureteral strictures should be dilated.

Pyelography is of value in the determination of the location, and occasionally of the presence and size of renal calculi. Of interest in this condition is a patient seen some time ago who had a stone appar-

ently one centimeter in diameter in the left kidney. The coating of this calculus, following the injection of sodium iodid solution, however, showed it to be two and one-half centimeters in diameter. One of the most interesting cases of nephrolithiasis that has come under my observation was that of a man with an enormous coraliform calculus which filled the entire right kidney pelvis and the calices. The left kidney contained a small calculus the size of a pea. There was no pain in the right kidney and its function was better than that of the left.

It is sometimes possible to remove a kidney stone through an incision in the upper ureter in the presence of a pelvis which is entirely intrarenal.

Some time ago I operated on a young man suffering from bilateral giant ureteral calculi. The stone removed from the left ureter weighed forty-four grams. Three stones were removed from the right ureter several weeks later. The largest of these weighed eighteen grams. The literature contains no record of a similar case.

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DOCTOR FARMAN (Closing).—I wish to express my thanks for the discussion of my paper.

The point raised by Doctor Kreutzmann in regard to drainage of the kidney pelvis by the introduction of a small rubber catheter through the nephrotomy incision, in my experience has proved to be a good measure. It aids in preventing postoperative pyelonephritis. Urinary fistulae, following operations upon the kidney and upper ureter, are rare.

No doubt a certain number of recurrences of stone formation can be prevented through a careful plan of follow-up treatment to reduce urine infection, decomposition, and retention in any part of the urinary tract.

TRAUMATIC SHOCK—ITS NEWER ASPECTS AND TREATMENT*

By GEORGE K. RHODES, M. D.

AND

CAROL MCKENNEY, M. D.

San Francisco

DISCUSSION by Ernest H. Falconer, M. D., San Francisco; Burns Chaffee, M. D., Long Beach; Charles T. Sturgeon, M. D., Los Angeles.

THE term "traumatic shock" is often loosely applied to any of the several collapse states which may follow an injury. These group themselves roughly into three divisions: (1) Primary shock, which develops immediately following an injury and is a condition which is nearly always caused by hemorrhage or a nervous manifestation such as syncope. (2) Very late toxic states which are usually the result of sepsis in the wounded area, secondary to virulent infection such as gangrene. (3) Secondary or true traumatic shock, occurring after a definite but not extensive time interval and not caused by nervous collapse, hemorrhage, or infection.

It is the latter state with which this paper deals.

SECONDARY OR TRUE TRAUMATIC SHOCK

The subject of traumatic shock is still a very live one. In the course of our association with the San Francisco Emergency hospitals we have an exceptional opportunity to study this problem.

* From the Department of Surgery, University of California Medical School, San Francisco.

* Read before the General Surgery Section of the California Medical Association at its fifty-seventh annual session at Sacramento April 30 to May 2, 1928.

Traumatic shock is a general body state which is characterized by the following essential symptoms and signs:

1. There is a persistent reduced systolic and diastolic pressure associated with a rapid thready pulse and lowered pulse pressure.
2. The respirations are rapid and superficial.
3. The skin, which may be pallid, grayish, or cyanotic, is cold and moist with sweat.
4. Thirst is common, and nausea and vomiting are frequent.
5. The patient is often restless, but there is a lessened sensibility and a dulled mental state.
6. The temperature is usually subnormal.
7. Special laboratory tests reveal an increase in red blood cells and hemoglobin in the peripheral circulation. They¹ also show other evidence of decreased blood volume and volume flow.

When confronted with such a picture in a patient, it is essential to determine at once the presence or absence of acute hemorrhage as a superimposed factor. This differentiation is vital because gross hemorrhage usually demands hemostasis before the routine treatment of shock can be instituted safely.

If hemorrhage is the major factor, the clinical picture is altered in that: (1) The apathy is replaced by anxious alarm. (2) Instead of the passive immobility of shock there is restlessness and often a marked degree of muscular activity. (3) The shallow rapid respiration is replaced by deeper and more labored breathing, which is terminally aptly described as typical air hunger. (4) The examination of the peripheral blood shows a diminution in red blood cells and hemoglobin as in secondary anemia, thus differing markedly from the findings in shock. There is also a leukocytosis with a relatively high percentage of polymorphonuclear elements, and when the hemorrhage is internal there is a rapid and very marked increase in white blood cells. In patients suffering from ruptured spleen or liver, we have recorded a leukocytosis of 70,000 within one hour after injury. When the hemorrhage is secondary to intra-abdominal lesions, we usually have other associated evidences of an acute abdominal condition.

The constant derangement of physiological function in shock is one which affects the circulation and which brings about a lowered blood pressure and volume flow through loss of available blood volume from the vascular system.

PRINCIPLES UNDERLYING PROPER TREATMENT

To treat this condition of traumatic shock in a rational manner it is essential to understand the perverted physiological mechanism underlying the production of the pathological state. It may be assumed that the lowered arterial and pulse pressure, with the resultant diminution of blood volume flow, brings about a relative tissue anoxemia. This lowered blood pressure and accompanying tissue anoxemia are accountable for the

other phenomena, such as lowered metabolic rate,⁶ lowered blood alkali reserve (acidosis), and loss of body heat.^{2 3 4 5} If the low blood pressure with its reduced volume flow is sufficiently persistent, permanent cellular changes are brought about in the higher nerve centers,^{7 8} and these ultimately result in paralysis of the vasomotor center.⁹ Herein lies the great need for early treatment in shock, for once the vasomotor center has become permanently damaged by the anoxemia, vascular tone is lost. When this loss of vascular tone exists, our efforts to combat shock, particularly those endeavoring to restore fluids, will be fruitless. The problem accordingly resolves itself into an attempt to interrupt the chain of events which leads to these typical vicious circle reactions.

Satisfactory explanation of the low arterial pressure is difficult. It is here that the theoretical accounts of the initiating factor in shock widely diverge. To consider them it is necessary to review briefly the possible factors which may bring about low blood pressure. There are: (1) Weakness and failure in the pumping apparatus, the heart. (2) Increase in the size of the vascular bed, partially at least under control of the vasomotor center. (3) Loss of blood volume with associated increased viscosity of the blood.

The cardiac factor can be dismissed at once, as no evidence that the myocardium plays any part in the circulatory failure of shock has ever been adduced.^{10 11 12}

The theories depending upon vasomotor paralysis with its resultant stagnation of blood in the peripheral and splanchnic areas, though long popular, are untenable in the light of recent clinical¹³ and experimental evidence.^{14 15} This tone is diminished or lost only after the vasomotor center has been damaged by the anoxemia to which it has been subjected. The acidosis known to be present in shock states, also has been put forward as a cause of shock. However, the acidosis can be demonstrated to follow the lowered blood pressure rather than precede it.^{2 3} The anoxemia attendant upon this diminished blood flow is in all probability the cause of the acidosis rather than the result of it.^{4 5 18}

The above observations leave us with the third, or blood volume reduction factor, as the sole remaining possibility. That an actual and important loss of volume in the circulating blood does in fact occur, and this probably from hyperpermeable capillaries, is forcibly shown by the work of W. B. Cannon of the World War shock commission.^{1 17} In that investigation blood volume was computed by the dye and dilution methods in all stages of shock and was invariably found to be markedly below the normal figures. That this loss of volume is at the expense of the fluid portion of the blood was demonstrated by hematocrit, red blood cell, and hemoglobin readings, which showed a definite concentration of the cellular elements in the peripheral or capillary

circulation. That these changes are not so marked in blood obtained by venipuncture strongly suggests the capillary bed as the probable site of the volume loss. That the loss is of the plasma and not the water portion, is shown by the failure of the protein content in the capillary blood to increase, which it would were only water to pass from the vascular system into the tissues.¹⁸

The relative increase of the cellular elements augments the viscosity of the blood, which further reduced the flow.

What causes this transudation of plasma from the blood into the tissues? War data have disclosed that men with severe wounds do very much better if the injured, often crushed, member is amputated before the onset of shock. There are other observations of a like nature which indicate the wounded area as the location of the factor which initiates the systemic reaction of shock. There are but two pathways by which such an effect could travel from the focal lesion, namely, the nervous and the vascular. Some simple but illuminating work by Cannon answers this question. In a series of well-controlled experiments,^{9 19 20} he induced the typical clinical and laboratory pictures of traumatic shock in animals by crushing the thigh muscles. He made a continuous graph of the blood flow and pressure before and during the experiment. The following illuminating facts bearing on the therapy for the condition were noted: The blood determinations showed a distinct diminution in volume and flow and an increase in hemoglobin and red blood cells in peripheral circulation. That these effects were not the result of nerve reaction from the traumatized leg was demonstrated by sectioning all nerve communications to the part. This procedure did not alter the results in any respect. When the vessels from the part were clamped, no shock resulted. Clamping the vessels after the induction of shock resulted in a cessation of the blood pressure fall and in recovery in many cases. Reopening the circulation to the crushed tissues resulted at once in an exacerbation of the shock signs and eventually death. Massage of the injured tissues or active motion of the fractured member abruptly aggravated the shock status. Crossed circulation experiments gave identical results in an entirely uninjured animal, without producing shock in the injured. The conclusion must be drawn that there is a toxic substance disseminated from the traumatized tissues via the blood stream which has the ability to produce that clinical picture we choose to term "traumatic shock."

Above have been briefly outlined the various contributing elements which enter into the composite entity. The nature of the toxin is not entirely clear although the evidence at hand would indicate that the state is the result of a proteose intoxication. It is known, for example, that proteoses are released from traumatized tissues.¹⁹ It is also apparently proved that proteoses and histamin bodies will produce all the conditions

seen in shock.^{21 22 23} The inference that the toxin is produced by proteolytic activity is strongly suggested. Possibly substances given off by extravasated blood are likewise depressive to circulation, as blood injected just prior to coagulation does drop blood pressure. There are other clinical entities such as gas gangrene, high intestinal obstructions, extensive burns, and severe local sepsis which bring about a pathologic state identical with traumatic shock. In each of these conditions the etiologic factor is quite generally accepted as being the result of a toxic proteose absorption.

ACCESSORY AND AGGRAVATING FACTORS

Though a toxin derived from traumatized tissues is the fundamental feature in the initiation of shock, it seldom works alone to produce this state. Usually one or more specific aggravating factors are present to augment or prolong the toxic effect. Particularly does hemorrhage before and during shock jeopardize the patient's chances for recovery. There is a point in the falling blood pressure which represents a critical level, beyond which anoxemia, acidosis, and other evidences of shock make their appearance.

In uncomplicated shock this level is a systolic arterial pressure of about 70 to 80 millimeters of mercury. When, however, the patient has suffered hemorrhage, even in amounts which alone would be totally unproductive of symptoms, the shock state is greatly aggravated so that the critical level of the blood pressure should be raised ten or more millimeters of mercury. Exposure to cold markedly endangers the patient's prospects by inaugurating a vicious circle in which the slowed circulation has already caused a drop in body heat.

The question of surgical anesthesia comes into prominence as a possible augmenting agent in shock. Ether is known to have a depressive action on the myocardium, thus introducing a cardiac element into an already embarrassed circulation. Properly proportioned and administered nitrous oxid and oxygen or local anesthesia obviates this danger. Other complicating factors are vomiting and sweating, both of which increase the fluid loss. Chest wounds with resultant impairment of respiration, jolting or motion between bony fragments which may occur in transportation, also increase the shock. Undoubtedly psychic and nervous manifestations may aggravate the approaching collapse of the circulatory system.

PROPHYLAXIS AND TREATMENT OF SHOCK

To be effective, the treatment and prophylaxis of traumatic shock must be predicated upon the facts above noted. It must always be before us that the early application of even the simplest remedial measures is of fundamental importance. The various vicious circles which tend to establish themselves suggest certain procedures at once.

A. Control of Hemorrhage.—This must be done promptly and adequately, for it has been proved that individuals who have been severely

injured are often reduced to the state of shock by even a slight hemorrhage. The use of a tourniquet alone for the control of hemorrhage is to be condemned when simpler means, such as packing, pressure, or ligation, will suffice. The release of a tourniquet, long applied, is often attended by disastrous results to both the extremity and the injured individual. The tourniquet, therefore, should be reserved only for short temporary application, as during an operative procedure. (Note: The tourniquet has its ideal usage when it limits the absorption of toxic material from an extremity. In these instances when the extremity must obviously be sacrificed on account of trauma, gangrene, or sepsis, the amputation is performed proximal to the permanently placed tourniquet.)

B. Conservation and Restoration of Body Heat.—The association between the incidence of shock and loss of body heat has been well established. The conservation and restoration of body heat alone has frequently been efficacious in turning the tide in the patient's favor. The injured man should be surrounded immediately by dry clothing, warm blankets, and hot water bags, and during the preliminary examinations there should be the very minimum exposure of the body. When possible, hot drinks are an effective mode of contributing heat to the injured.

C. Pain, Restlessness, and Psychic Disturbances.—These should be controlled early by the liberal administration of opiates together with properly applied surgical dressings and psychology in the nature of reassurance.

D. Posture.—The elevation of the foot of the bed with so-called "shock blocks" is still a routine procedure although the rationale has been questioned.^{24 25} Undoubtedly, in primary shock or syncope it is a most valuable measure.

E. Medication.—Symptomatic treatment is directed principally toward restoring the low blood pressure to a normal level. Vasoconstrictors, such as ephedrin, adrenalin, and pituitrin, are probably of slight value because, though they may increase the blood pressure temporarily, they fail to increase the blood volume and may, in fact, decrease it further by constricting the capillary bed. Caffein in large doses is used almost routinely as the proper stimulant for the patient in the shock state. Certain observers recommend also various cardiac stimulants of the digitalis group for these patients. The value of both caffein and digitalis is probably overestimated, as apparently there is no intrinsic myocardial fault demonstrable.

F. Administration of Fluids.—The effort to raise the blood pressure by forcing fluids is a more rational procedure, as these fluids act in some measure as a substitute for the lost blood plasma. The effect is transitory, however, as the added fluid quickly leaves the vascular channels through the damaged and permeable capillaries; but, though transitory, the benefit is none the less actual and often will serve to tide the patient over a critical point. When possible, the administra-

tion of fluid by mouth and rectum is simplest and most efficacious. The intravenous or subcutaneous routes, however, are always available. Lately intravenous glucose, the metabolism of which is assured by insulin, has become deservedly popular, as not only is volume thus furnished, but the cellular nourishment so greatly needed in many of these patients is provided. Particularly is this true of those patients suffering from shock in whom the pancreas temporarily seems to have ceased functioning. Blood transfusion is undoubtedly the best procedure of this nature, as the plasma so supplied, being colloidal in nature, is not so readily lost into the tissues as the more diffusible crystalloid solutions. In the opinion of most recent authors, gum acacia solutions are too dangerous to permit their use.

There is but one way to attack the fundamental cause of the shock state. The dissemination of the shock-producing toxins from the injured tissues must be prevented or limited as completely as possible. Cannon's experiments with injured extremities of animals have a practical application which should standardize the treatment of hopelessly mangled human extremities.

SUMMARY

Accordingly, for the San Francisco Emergency Hospital service, we have endeavored to formulate a rational method of treatment for seriously injured extremities. We have combined the aforementioned routine symptomatic therapy with adequate modern surgical treatment as outlined below:

1. For the simpler comminuted fractures and for other less severe injuries, adequate splinting will suffice.
2. For the badly compounded fractures or severely lacerated extremities, thorough debridement under nitrous oxid-oxygen anesthesia, with immediate institution of Carrel-Dakin therapy, is indicated.
3. For the hopelessly mangled extremity which obviously is ultimately to be sacrificed, even more radical measures are adopted. In these cases a tourniquet is carefully and permanently applied just proximal to the traumatized tissues. The patient is then treated for traumatic shock by the various measures outlined, and the blood pressure and general status carefully watched. The patient's blood pressure must be at least 80 to 90 millimeters of mercury before we consider amputation safe or advisable. The time interval required to reach this minimum systolic pressure bears a direct relation to the adequacy of the routine shock treatment applied. It also bears a direct relation to the period which has elapsed before the application of the permanent tourniquet. The time required to prepare the patients in our series varied from two to twenty-four hours. Extended periods of time must be avoided at all hazards, for the disintegrating tissues distal to the tourniquet encourage sepsis which may rapidly surmount the tourniquet itself in cases of gas gangrene caused by *B. welchii* or similar organisms.

We are convinced that every patient who has extensive severely traumatized wounds routinely should receive immediately prophylactic inoculations of both tetanus and anaërobic sera. The polyvalent serum developed from the saccharolytic and proleolytic anaërobic cultures has proved highly satisfactory both as a prophylactic and as a therapeutic agent.

The amputation is usually of the guillotine type, rapidly performed just proximal to the tourniquet, which is left in place throughout the operation. This is most important. Indeed, this tourniquet is at no time disturbed after its original application. We have repeatedly verified clinical data, showing that even temporary release of such a tourniquet which has been long applied often results in rapid and fatal relapse into the shock state.

Results in the treatment of hopelessly mangled extremities by the outlined procedures have been most gratifying to us in a considerable number of cases. We have observed many instances of dramatic recoveries of patients who seemed almost moribund, and for whom even bilateral amputations done in accordance with the described technique were successful.

These procedures are submitted as a guide for the rational treatment of patients suffering from traumatic shock. For those with hopelessly mangled extremities, they offer a very practical mode of treatment.

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DISCUSSION

ERNEST H. FALCONER, M. D. (384 Post Street, San Francisco).—This is an excellent résumé of the present status of shock because it deals with the physiology of the condition. Once the underlying factors in the production of shock are understood it becomes readily amenable to treatment if the simple measures mentioned by Doctors Rhodes and McKenney are promptly carried out. It is worth while emphasizing again the fact that if the vasomotor center in the brain is deprived for more than one hour of an adequate blood supply and, of course, oxygen supply, which is the important thing, it becomes nearly a hopeless task to bring an individual out of the shock state. The reason being that the vasomotor center suffers permanent damage rapidly when its blood supply is cut off by the extremely low blood pressure and poor circulation of the shock state. It is extremely important, therefore, to watch the blood pressure. When critical blood pressures are present never operate on a patient under ether anesthesia. The simpler resuscitation measures as external heat, fluids intravenously, hot drinks, morphin in large doses (one-half grain), will often serve to restore the pressure. If it continues to drop below the critical point, prompt recourse to blood transfusion is indicated. The discussor used gum-salt solution extensively in shock and resuscitation work during the World War and never noted any untoward results, but apparently this has not been the general experience.

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BURNS CHAFFEE, M. D. (917-21 Security Building, Long Beach).—The essayists have presented a very practical paper on an ever-important subject—automobile accidents alone furnish too many cases of traumatic shock. As has been stated, shock may be caused experimentally by one of several conditions; however, in man shock is generally the result of several factors. I do not believe that you can exclude nervous collapse or absorption of toxic substances, nor entirely rule out hemorrhage in every case. If hemorrhage is the primary factor, blood transfusions bring about a rapid recovery. Not infrequently the leukocyte count may be twenty thousand or even higher and in some cases of moderate shock in which no hemorrhage exists, and in the absence of crushed tissue; the increased count is probably due to absorptions of toxins resulting from more or less trauma to the entire body. Evidence at hand proves beyond a doubt that surgical shock is essentially due to intoxication by materials derived from damaged tissues and no doubt there is a difference in individuals' ability to tolerate the toxic substances whether they be proteoses or histamine bodies. This may explain why certain individuals are more susceptible to traumatic shock than others.

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CHARLES T. STURGEON, M. D. (1930 Wilshire Boulevard, Los Angeles).—Whatever the absolute cause of shock may be, the end result is deoxygenation of the body tissues which results from diminution of blood volume in circulation. The loss is due to stagnation of the blood in the capillaries. Hemorrhage and low blood pressure are frequent factors. The rationale of the treatment, therefore, is to restore the volume in circulation and to raise the blood pressure.

Blood transfusions are superior to any other form of treatment in restoring the blood volume whether hemorrhage is or is not a factor in the production of the shock. Next in value is a glucose solution—10 per cent glucose in 1000 cubic centimeters of salt solution plus insulin. Next in value is salt solution, and although salt solution is the least valuable of the three mentioned, still it is always procurable and easily prepared. If for some reason it is impossible to give a blood transfusion or glucose at once, the salt solution should be given.

The method of administration should be the intravenous route. If the solutions are well prepared and given slowly, there is no danger of any heart com-

plications or severe reactions. The subcutaneous and rectal method are too slow and indefinite when dealing with a very sick patient.

To raise the blood pressure the best thing we have found has been the use of ephedrin sulphate. In some cases where the pressure has been extremely low we have not hesitated to use it intravenously, and repeated it as often as necessary because it is definitely known that patients with a low blood pressure of 80 or less which has existed for more than four or five hours rarely recover.

If when surgery is necessary, such as an amputation, etc., the question arises what type of anesthetic is best to use. Spinal anesthetic does wonderfully well for this type of patient although it has a tendency to depress the blood pressure slightly. If ephedrin sulphate has been used just before the anesthetic and given during the operation if the blood pressure drops perceptibly, the operation can be performed without any risk to the patient. I think spinal is an ideal anesthetic.

The more we understand the pathology of shock the clearer our line of treatment will be.

THE PSYCHONEUROTIC PATIENT AND THE CLINICIAN*

By WILLIAM H. BARROW, M. D.
San Diego

DISCUSSION by Arthur L. Bloomfield, M. D., San Francisco; V. R. Mason, M. D., Los Angeles; C. M. Haviland, M. D., San Diego.

PATIENTS are of two types, one group presenting symptoms which are clear-cut and apt to be minimized; the other group with complaints which seem to spread out like the waves on a pool of water into which a rock has been thrown and where though the primary disturbance is really slight the turmoil of the waters is great.

It is inevitable that, under the stress and strain of our modern social and industrial existence, the psychoneuroses and neurasthenias should loom large as clinical entities and as outstanding factors in other diseased conditions. Review of medical literature indicates that there has of late been a reawakening of interest which comes as a reaction against a practice of medicine that here and there was becoming too cold-bloodedly scientific; a system where in the maze of scientific data it was possible to forget that the patient was a sentient human being who had a soul as well as a body, and that the reactions of the one were as important as the reactions of the other. Carrying on the discussion where it was left off in the literature by Weir Mitchell and Osler many years ago, there is of more recent date an outstanding monograph by the late Francis Peabody.¹ He pointed out that in order to treat a case of any sort intelligently and adequately the doctor must know the patient through and through; that disease in man is never the same as disease in an experimental animal; that its manifestations are different even in different individuals, and that disease "at once affects and is affected by . . . emotional life." In a symposium at a recent meeting at the American Medical Association, Woodruff, Hunt, Foster McLester, Neilson, White,

Einhorn, Kilgore, and Rosenow² discussed the interrelation of somatic and psychic disturbances and emphasized the fact that disease, be it functional or organic, must be studied and treated with both physical and psychic factors in mind. There is hardly a medical convention today without one or more papers on the functional or so called affective disorders.

In all of this discussion emphasis has been laid on etiology and diagnosis rather than on treatment. The purpose of this paper is to approach the problem from the point of view of the management of these cases insofar as such management falls within the realm of the clinician and general practitioner.

THE PSYCHIATRIST AND THE GENERAL PHYSICIAN

In this day of specialization it might at first seem most expedient to refer these cases to the psychiatrist, but such a disposition is not generally satisfactory. The neurasthenic patient seldom consults his doctor for nervousness or mental symptoms, but rather for indigestion or headache or palpitation of the heart or for any one of a number of other physical ailments, and he resents being told that his trouble is all "nerves" and objects to being sent to a man who treats only "nerves." A patient who had had severe headaches all her life recently told me that she had been referred to a psychiatrist because there was nothing organically wrong with her and that this psychiatrist had psycho-analyzed her and told her that she was a Peter Pan type of individual, that she would have been all right if she could have remained a child, and that it was a mistake for her to have assumed the strain and obligations of married life and motherhood. "Well," she said in a tired way, "That may all be true, but what am I going to do about it now, and—I still have my headache." The patient comes to us not only for a diagnosis but for treatment of his symptoms, and where these symptoms are related to functional or organic physical disorders more can usually be accomplished by the patient's own physician than by the psychiatrist alone. Psychoneurosis is, of course, to be differentiated from true psychosis, pure hysteria, anxiety neurosis, and the other purely psychic disturbances which fall distinctly within the realm of the psychiatrist.

SCOPE OF THIS DISCUSSION

This discussion is limited to that large class of cases included of late under the broad term of psychoneurosis, in the past more commonly called neurasthenia; a condition where the chief complaint is usually physical, where the subjective symptoms are usually out of all proportion to the physical findings, and where there is always an underlying and usually obscure mental or psychic disorder, based on some environmental or circumstantial conflict.

It would seem that in these cases the somatic manifestations are due to organic or functional disorders, the symptoms of which are exaggerated by the lowering of the patient's threshold

* Read before the eighteenth semiannual meeting of the Southern California Medical Association, April 5, 1929.

to pain and discomfort. I realize that this statement is open to argument, but I cannot, within the scope of this paper, do more than express this personal opinion—that where there is a physical complaint there is an underlying physical defect that needs attention. The patient who is having indefinite but perfectly real abdominal distress may rightly be much dissatisfied with the medical opinion that, because the gastro-intestinal series and other investigations are negative, there is nothing wrong with him. Incidentally, these somatic complaints offer an opportunity to the physician to give the patient relief and thereby win his confidence and trust much more quickly than psychotherapy alone could do.

SIGNS AND SYMPTOMS OF PSYCHONEUROTICS

As has been brought out in the literature, the manifestations of psychoneurosis are legion. In a series of cases which I recently studied, the complaints referable to the gastro-intestinal tract outnumbered all other complaints combined. General fatiguability was second, and symptoms referable to the nose and throat or respiratory system were third. Headache was seldom the outstanding symptom, but was, nevertheless, found to be present in more than half of the patients. There were present also some of the lesser complaints of nervous irritability, inability to concentrate, capricious appetite, fitful sleep, palpitation of the heart, precordial pain, inability to get a full breath, and loss of libido, or other sexual disturbances.

DIAGNOSIS

In the diagnosis and management of these somatic disorders I can here take up only one or two points, since a full discussion would cover most of the functional disorders of the body. In taking the history it is often helpful to get the chief complaints without leading questions. This is of twofold value. In the first place it insures a truer picture because the psychoneurotic patient is so subject to suggestion that he will admit having nearly any symptom that is suggested to him. In the second place, there is often real therapeutic value in the relief of pent-up emotions and in the mental catharsis that takes place when the patient is encouraged to tell his whole story in his own way.

In psychoneurosis, diagnosis is obviously reached by elimination. It is essential to rule out all hidden disease and to understand the extent of such disorders as are apparent before one may safely say that the subjective symptoms are out of proportion to the disease and the psychoneurosis is an outstanding factor. We have all seen cases of pernicious anemia or deep-seated malignancy, or central nervous system lues, or of glandular dysfunction which have been undiagnosed and the patients have gone from doctor to doctor stigmatized as incurable psychoneurotics.

TREATMENT

In the treatment of the gastro-intestinal disorders, which are so commonly the outstanding complaint in the psychoneuroses, thorough investigation is essential and one should avoid the

temptation of giving, in desperation, drugs merely for the sake of doing something. Placebos will work temporarily—they are part of the armamentarium of treatment by suggestion which has fallen into disrepute—but they are apt to make the patient a slave to bottles for the rest of his life as he tries first one thing and then another in an effort to get the relief he once got. I have done gastric analyses on many of these patients, and there is, so far as I have been able to determine, no disturbance of the gastric acidity or rate of secretion unless there is also an organic lesion to explain it. Disorders of motility and peristalsis, that is tonic or atonic states, are however, not uncommon, as was recently shown by Ruggles³ in x-ray studies, so that although belladonna is often indicated, the alkalis so commonly given for nervous indigestion are not.

In the diagnosis and treatment of the underlying psychic disturbances it is helpful to bear in mind that there is usually, to begin with, a congenital constitutional nervous instability—a nervous system that was inadequate for the demands of life before ever the patient embarked on life's troubled waters. If the course of existence is a smooth one, all goes well enough, but in a storm, be it physical or mental, the ship does not handle well; weaknesses develop, and the ship founders. Easing the burden under which the patient labors obviously calls for an intimate knowledge of the patient's hereditary background and present status on the part of the physician, and faith and confidence in the doctor on the part of the patient. This much of our old medico-religious system of practice we have left—that without faith we are helpless and the patient is hopeless.

The circumstantial factor in a psychoneurosis may be toxic or traumatic or due to environmental conflicts; and here the psychiatrist can be of great help in analyzing the situation. Treatment may take the form of suggestion with the use of placebos or even of hypnotism, although this form of psychotherapy has been abandoned as being of little permanent value. Or we may use persuasion, which in my experience is ineffectual because it calls for constant application, which is hardly practical. Persuasion is a crutch on which the patient leans and without which he is again helpless. Finally, there is psycho-analysis, by which the patient is made to understand himself, recognize his limitations, to minimize his symptoms through a realization of their significance. In passing, it might be said that the will, the desire to get well, is a prerequisite of successful progress. The hopeless cases are those in which the psychoneurosis is an escapement or defensive manifestation, and where a life of invalidism is more desired than the battle of life with inadequate equipment. Many of our so-called shell-shocked veterans receiving compensation from the Government and sympathy from the relief organizations are in this hopeless class.

Where the psychoneurosis is completely disabling, the old Weir Mitchell ⁴ treatment is often most effective. It is sound in theory and efficient in its application. The patient is, after careful clinical study, put in an institution, preferably a quiet convalescent or nursing home. He is completely isolated from his old environment and an effort is made to start him off anew, physically and psychically. An efficient and sympathetic nurse is essential. Except for the visits of the doctor and the nurse he is completely shut off from the outside world. He is not even allowed to receive or to write letters. He is put to bed and placed on a semi-starvation diet. After a few days, if there is no serious gastro-intestinal disorder, the diet is rapidly increased and the patient's first new interest is perhaps in his food and in his increase in weight. Massage and hydrotherapy, which at first are sedative in character but later more vigorous, are part of the regimen, and the visit of the masseur comes as an added diversion and interest. Later, occupational therapy of some simple type is added to afford some physical activity and training in concentration. As the patient improves he is gradually allowed to extend his activities, to venture out for short walks, to again come in contact with the world. The rôle of the physician through all this is that of the master whose word is law but who, with encouragement stands ready to help the patient find himself, and by his professional skill to relieve the physical discomforts. These patients are usually of the intravert type and although some introspection is to be at first encouraged so that the individual may understand himself, treatment that is purely psychotherapeutic may defeat its own end. Likewise, treatment directed at any one organ alone is apt to center the patient's attention too much on that one part of his body and aggravate rather than alleviate the condition. What is needed in the attending physician is not a highly specialized knowledge of psychiatry or of any of the other specialties, but rather a breadth of medical vision and skill that will enable him to make the patient comfortable. The physician should have a large fund of patience and compassion and common sense so that he can establish contact with the patient and win his confidence and, finally, should have the ability to call for and profit through help from consulting specialists when such aid is indicated.

The unfortunate part of the Weir Mitchell regimen is that it is possible only for the well-to-do, but the basic principles may be used generally. For example, even a clinic patient can arrange for rest in the quiet of her room for a period each day; she can resort to the bathtub for modified hydrotherapy; she can get a taste of comparative isolation by visiting the home of some unmarried or childless friend once a week; she can test the value of occupational therapy by developing a hobby, and she can, of course, follow the required dietary regimen. If meanwhile the somatic complaints are adequately treated and the doctor takes the patient into his

confidence and makes her understand the rationale of the procedure the results may be most encouraging.

CONCLUSIONS

1. The psychoneuroses are characterized by a combination of psychic and physical disorders, the one reacting on the other. Treatment must be directed at both the somatic and mental manifestations.

2. Where there is a physical complaint there is usually an underlying physical defect, the symptoms of which are exaggerated by the patient's lowered threshold to stimuli of pain or discomfort.

3. The common somatic complaints have been enumerated and some practical points in diagnosis and treatment discussed, with special reference to gastro-intestinal manifestations.

4. In the treatment of the underlying psychic disorder the patient should be made to understand himself and taught to compensate for his constitutional defect.

5. The details of the Weir Mitchell treatment are reviewed and a plea made for the more general use of the basic principles of this regimen in the ambulatory patients who pathetically come to us day after day seeking relief.

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DISCUSSION

ARTHUR L. BLOOMFIELD, M. D. (Stanford University Hospital, San Francisco).—Doctor Barrow's paper takes up a most important phase of medicine, namely, the border-line zone between internal medicine and psychiatry. Doctor Barrow emphasizes the important fact that whether or not gross lesions are demonstrable as a cause for the patient's symptoms, an element of functional maladjustment, in the broad sense, may often exist as well. Unless this element is considered and dealt with, no satisfactory result can be obtained. The importance of studying the patient carefully and becoming thoroughly acquainted with him as a complete individual, and the value of prolonged rest, up-building, encouragement and readjustment are properly emphasized. Many physicians think of these measures as quite obvious and simple in their application; as a matter of fact, the proper conduct of a rest cure so that substantial results are obtained is as highly technical a procedure as the removal of a gall bladder. Little of value has been added to the original Weir Mitchell method, and it is fortunate that physicians in these modern days when "quick results" are arrived at have, for the most part, neglected an invaluable mode of therapy.

V. R. MASON, M. D. (838 Pacific Mutual Building, Los Angeles).—Psychoneurosis is not a disease entity. It is a type of reaction of an individual to his environment. The causes of this abnormal reaction are numerous. In many instances the precipitating factor lies in the affective sphere; in other cases chronic somatic disease is present. In the greater number, I believe, the symptoms are manufactured as a wall of protection against life's struggles. It is apparent that rest cures and proper medical supervision will rehabilitate some. A large number might be cured by compulsion; a remedy which cannot be used in our modern civilization. Instead many have been able to keep up their pretense of sickness by daily visits to the physician for the application of the latest therapeutic fad.

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C. M. HAVILAND, M. D. (Medico-Dental Building, San Diego).—One of the main functions of an article such as that written by Dr. William H. Barrow on "The Psychoneurotic Patient and the Clinician" is to call the attention of the medical profession to the increasing necessity for a careful study of these patients in an effort to understand the causes for this rapidly growing class of emotionally sick (?) individuals.

As a result of working with these psychoneurotics one discovers that the emotional development of an individual is subject to as many pathological variations as is the physical make-up; in fact they exceed them, and it is in this department of medicine that there exists the greatest need for trained and enthusiastic workers. In life's journey from infancy to adulthood it is a common occurrence that some few strands which enter into the emotional sum-total of an adult individual have failed to develop properly while others have continued on to normality. The final outcome of this uneven emotional development is a curious combination of childishness and maturity—the psychoneurotic—hence the phobias, the inferiorities, the invalidisms, and so on. In the physical realm of growth the same process results in infantile residuals of organic development.

The psychoneuroses are like the organic diseases in that no one method of treatment is applicable to all cases and, as in the case of physical disease where the family and the early personal history of the patient is carefully examined, so in the neurotic an adequate study of the emotional history is a prerequisite to any outline as to treatment. To either affirm or deny that these neurotic states are always founded upon organic pathology would be slightly overreaching the present state of absolute knowledge on the subject. Insofar as the functions of the body come under emotional control we will find, in these neurotics, greater or less physical changes taking place as a result of the emotional interference which may by long continuance become chronic, eventuating in true organic disease.

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DOCTOR BARROW (Closing).—The discussion has emphasized the important point that the study and management of these cases calls for an expenditure of time and patience as well as a considerable degree of acumen in uncovering the prime factor in the disturbance. That many of us are unwilling to give so much of our time to one patient is the cause for the prosperity of the irregular cults to which so many of these patients finally go for relief. I am reminded of an incident where one of our great clinicians was seeing a case in consultation in a small town near Baltimore. One of the doctors with him whispered that if he hurried he could catch a certain train back to the city. The consultant immediately replied that they could afford to miss the train, but that above all things, they could not afford to be in a hurry. This is certainly the attitude that one must take in attempting to treat these rather obscure and always difficult cases.

THE LURE OF MEDICAL HISTORY

SIXTEENTH CENTURY GERMAN MEDICINE*

Artzneybuch of Hofmedicus Gäbelthouer

PART III

By S. L. MILLARD ROSENBERG, Ph. D.

Los Angeles

AS we said at the beginning of Part II, before the reader lets his amazement run away with him while perusing these extracts from the sixteenth century *Artzneybuch*, let him look at the many evidences of like practices today. Should we be so cocksure of our own advancement? Is man not, even in this twentieth century, somewhat predisposed to forsake precise medical data, and jump from such to the spectacular methods of the Middle Ages? For instance, take the following item, which just now reaches us from Paris, where highly reputable physicians have revived the common practice of ancient times of mashing snakes' heads into medicine in the belief that "its former widespread use could not have rested solely on credulity and imagination." A rather naïve belief, it would seem, for according to such logic, and having at hand the *Artzneybuch*, may we not look forward to revivals of a goodly number of noxious and repellant medicaments? Let me quote from *The Journal of the American Medical Association* of July 19, 1930, page 212. The quotation is from the journal's regular Paris correspondent, and is headed "Attempt to Re-introduce the Viper as a Medicament." The item is as follows:

Ancient medicine made great use of a concoction of parts of vipers, which was used in many diseases and was described in the pharmacopeia as late as 1884, although long since completely abandoned. Professor Billard of Clermont-Ferrand took a notion recently, out of curiosity, to make a study of this product, thinking that its former widespread use could not have rested solely on credulity and imagination. The heads of vipers were placed for a month in a 95 per cent alcohol solution and then were ground up with chopped meat, and ten times their weight of physiologic sodium chloride solution was added. The product was then passed through a candle filter and put into ampules. This maceration, when injected into the peritoneum of rabbits, caused an abundant evacuation of urine, and in healthy human subjects, when injected subcutaneously, the same result was observed. The article of Mr. Billard and his assistant, Mr. Barbes, in the *Concours Médical*, contained an account of a young girl who it was feared would die of scarlet fever. As her kidneys no longer seemed to function, she was given two subcutaneous injections of the maceration, and it brought relief and the child recovered. The maceration was found to be a diuretic of great value, which is the same conclusion reached by the physicians of ancient times.

* Part I of this paper, giving the introductory comments on the book under review, was printed in the July issue of *California and Western Medicine*, page 508. To understand the prescriptions here given, it is desirable to read Part I of this paper. Part II was printed in the August issue, page 602. The book referred to is the "*Artzneybuch*" of Hofmedicus Gäbelthouer, printed at Tübingen, Germany, in 1596. Brackets as used in this article are insertions by the translator.

We do not quote this to ridicule it; not at all. Only to show that while doubtless much of the older medicine has been happily abandoned, it was not all fantastic.

One of the letters received from a member of the California Medical Association, in connection with what has just been said, may be quoted here:

"I read the 'Sixteenth Century German Medicine' article with interest. I think these historical articles are perfectly bully and that the young men in the profession can do no better than take interest in the history of medicine if for no other reason than to see that perhaps some of our present ideas will be proved to be just as absurd as some of these old ones were."

Bearing these possibilities in mind, let us proceed with the quotations from the *Arztneybuch*.

SIXTEENTH CENTURY REMEDIES FOR STOMACH AND BOWEL DISEASES

Stomach troubles:

"A spoonful of rose honey mixed with brandy, taken every morning, is excellent. Or, break a new-laid egg into a plate into which brandy has been poured. Burn it, and eat promptly after all the brandy is burned up, just before going to bed."

"Especially *when gall has entered the stomach*, vinegar on toasted bread is very helpful; this is also good as a bandage on stomach and heart, renewed frequently. Or, you may use a sponge soaked in boiling hot vinegar and squeezed fairly dry; apply hot and renew frequently."

"For *gas on the stomach*, grate horseradish fine, add a can of good old wine; drink a spoonful every hour. If gas causes *colic or severe griping*, take fresh almond oil, add equal quantities of brandy and camellia water, and a little sugar. Use regularly before meals. For *very severe colic*, secure half a dozen eyes of good-sized pickerel, an equal number from large crawfish; add several peelings of bitter orange; grind fine. Add a good strong wine. Give the patient a stiff drink of the mixture; see that he keeps very quiet and well covered and eats or drinks nothing for three or four hours. This will restore him."

"The meat of a pup not over nine days old is also excellent. It is helpful, too, to drink your wine or water through a large dried wolf's gut. Excellent also is a chest bandage filled with feathers of a hazel-hen, worn continuously. Or take cow droppings mixed with pigeon droppings in lard or other grease; heat and apply in a bandage over the navel. Or take the foot of a wolf and place on the navel. As it grows warm your pain will diminish. To salve your belly well with old grease and then place on it a little bag of ashes from oak wood, moistened in water or wine, is also very helpful."

Dysentery, or bloody flux:

"Take a new brick, heat it red-hot, pour red wine upon it; sit over it, permitting the steam to enter the anus. Take frequent hot foot baths, adding to the water boiled pigeon droppings. See that the water does not extend above the ankles. Take also living crawfish, put into a pot and burn to a coal; grind, and give a small portion of the powder night and morning in good red wine until relief comes. If the trouble is due to *worms*, boil in high-class goat's milk several garlics, and give an occasional hot drink of it. This will destroy the worms. For *either red or white dysentery*: skin an eel caught in May; mince the skin fine and dry; grind to powder. At every stool, pour a small quantity on the bowel-movement itself. Have the patient observe the greatest care and abstinence as to food and drink."

Tapeworm:

"Let the patient eat nothing whatever for three days. Then prepare a large potful of hot goat's milk.

Put the patient on a bench with a privy-hole in it, and let the steam from the milk enter the anus. This will attract the worm. Seize it when it shows its head and pull it out."

"If a *worm attacks your heart*, cut up a large radish, mix with salt, and eat on an empty stomach. Your heart worm fears nothing so much as a radish."

"For *hemorrhoids*, burn dog excrement and powder it; pour some on the protruding gut. It will not come out so soon again. Also use a salve of white onion and butter; smear your posterior with that. And the juice of unripe sloeberries mixed with red wine will make a good wash for the posteriors."

"For *ulcerated piles*, take equal quantities of incense, mastic, and dog excrement, and a small portion of sulphur; mix, burn, and let the smoke come up to the anus. Some prefer myrrh to sulphur. Or take several snails, the kind that have no shells; put in a pot; stick with a knife or any pointed instrument to secure the frothy exudation, with which smear the piles, and a cure will be effected promptly. Such snails, with their froth, can be kept for a whole year, especially when well covered with salt. Or take a quantity of goose droppings—make sure that they are of geese only; cover well in a glazed pot, sealing with lime if necessary; heat until incinerated, and cool. Dip some cotton in hot olive oil; add about a walnutshellful of the goose powder, and keep this tampon on for about an hour. Repeat until cured."

"Goose droppings are excellent also for *costiveness*, a small quantity in hot pea soup, adding condiments enough to make it palatable. Mouse droppings are equally effective, treated similarly."

"For *delicate folk*, secure the inner skin of chickens' stomachs; dry, and give frequently a quantity that might cover a copper penny."

SIXTEENTH CENTURY REMEDIES FOR LIVER AILMENTS AND DROPSY

"For *all ailments of the liver*: secure the liver of a stag or deer in the month of May; hack fine; add cinnamon, clove, saffron, sweet-scented woodruff, hart's tongue, speedwell, hyssop, rosemary, and sage, a handful of each cut very fine; pour on white wine, neat's tongue water, and endive juice; keep well covered for a day, then boil. This will cure every ill resulting from *sluggish liver or other liver trouble*. Take a small tumblerful on an empty stomach every other day."

"For *jaundice*, nothing is better than the yellow skin from the stomachs of chicken. Wash clean, dry, pulverize; add an equal quantity of fine sugar. Take as much as might fill a hollow hazelnut, in hot water two or three times every morning, but in hot wine at night before retiring. Centaury plant, mixed with sugar, is also effective, and may be taken with the foregoing or by itself. As a helpful outer remedy in connection with the medicine, secure two young pigeons not yet able to fly; place them on the breast of the patient for several hours or until they [the pigeons] die. Or, if you had rather not have them die on the chest of the sufferer, remove betimes and replace with other pigeons. The birds will draw the jaundice out."

"Or, take the droppings from a brown horse, three or four balls; let your own urine run over it, in the morning, in quantity as much as you can command at one time on rising; mix well; put into a cloth, and hang in a chimney where smoke is plentiful. When good and dry, burn to powder, and use this powder." [It does not state whether inwardly or as a salve, but the medicus adds:] "If the remedy is not effective at once, keep on using it."

"For *dropsy*, take grease from a fat castrated dog, enough to fill the shell of a walnut; put into hot beer and give to the patient. Also put a little of the fat into the food of the sufferer. At any rate see that he gets some of it every day. The more the speedier the cure."

SIXTEENTH CENTURY REMEDIES FOR KIDNEY
AND BLADDER DISEASES

“For every *malady of kidney or bladder*, take seed of quince and of pumpkin; boil, and save the slimy juice. Let stand for two days; put through a sieve; squeeze out thoroughly. Then take equal quantities of oil of mandragora and the milk of a woman still suckling a female babe, about two or three spoonfuls; add the white of an egg; boil, stirring thoroughly and continually. When cold, this will give you a salve with which you are to smear the aching parts morning and evening.”

“For *stone in the bladder*, secure a wren—be sure it is no other little bird—cut its meat very fine and give to the patient raw, well mixed with salt. Or, if you prefer, dry the meat and give powdered. That will be sure to melt the stone, which will pass away with the urine. It has always proved successful with me. But assuredly the remedy is more effective when used fresh than when dried. I once gave it to a boy of thirteen, whose father had already arranged with a stone operator for ten guilders; and within three days the stone had melted and passed away in the urine, without any need of the knife.”

“Against *gravel in the bladder*: take droppings from field pigeons (by no means from domestic pigeons); starve for a day or two before killing; cook thoroughly and pickle in wine and vinegar. Give a little of the juice mornings on an empty stomach. three mornings in succession, until the pain subsides. But if results should not be prompt and the pain grow almost insufferable, put the patient into a hot bath while giving him small quantities of the remedy.”

“Excellent for *stone in the bladder* is also blood of a fox, but it must be a male. Smear it well about the genitals until they are completely covered. That will surely cause the stone to melt and pass away with the urine.”

“For *inability to make urine*, secure white dog’s droppings, make a dough with warm white wine, and put on the patient’s navel. That will help. Or use sheep manure in oil or grease, knead till soft, place in a doubled cloth on the patient’s abdomen. Or make a clyster of white wine in which you have boiled fresh donkey’s manure; squeeze till fairly dry and apply as hot as can be endured. That will help.”

“If the *urine passes blood*, take twenty melon seeds and as many cucumber seeds; let stand overnight in goat’s milk; heat, and let the patient drink the juice hot, night and morning, until a cure is effected.”

“For any *pain in the genitals*, the aforementioned salve of white dog’s droppings in wine will prove helpful. But for continued pain take a living crawfish or two; mash and dry; apply to the suffering parts. These remedies are good for both men and women. The privy places should continually be washed with wine, especially where the pain is most acute. A powder of tartar, first washed in wine and boiled with a little alum, is helpful *when holes have been eaten into the privy parts*.”

SIXTEENTH CENTURY REMEDIES FOR GOUT,
CRAMPS, AND WOMEN’S DISEASES

“For *gout and podagra*, apply a plaster of swine’s and cow’s droppings, mixed with fox grease or, if you can secure it, grease from vultures. Or cut up a lot of onions and boil well in the patient’s urine; use as a plaster. Or boil a lot of ants with their eggs and moisten a cloth in the mixture; apply to *the aching parts*.”

“For *cramp*, hang the tail of an otter about the patient’s neck. That will drive the cramp away. Or you may hang the teeth of a March hare about the sufferer’s neck, next the skin. This has proved very helpful. Or take a long peacock feather and bind about the aching limb or other cramped part.”

“If you have *become lame in hand or foot or other part*, fill a fat goose with garlic, boil till you have

(Continued on Next Page)

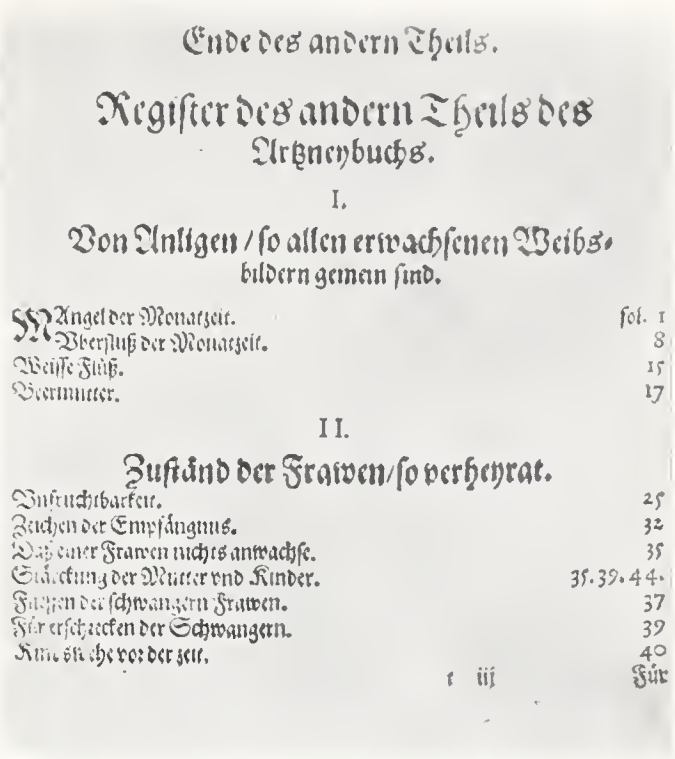


Fig. 5.—A page from Part III, devoted to diseases of women. Translation follows:

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ARTZNEYBUCH

I
ON DISEASES COMMON TO ALL WOMEN

	Page
Scantiness of menstruation.....	1
Excessive menstruation	8
White discharges	15
The uterus	17

II
DISEASES OF WOMEN WHO ARE MARRIED

Sterility	25
Symptoms of conception.....	32
To prevent complications during pregnancy.....	35
Tonics for mother and child.....	35, 39, 44
Flow of pregnant women.....	39
To prevent fright during pregnancy.....	40
Birth throes before the time.....	41

“ “ “

	Page
Strange desires (in pregnancy).....	35
Difficult delivery	42, 43
Painful parturition.....	44
Premature birth.....	45
To speed the after-birth.....	50, 51
Childbed directions.....	54
After-pains	54
Profuse bleeding	56
Abdominal swellings	58
Inability to retain urine.....	61
Sinking of the uterus.....	65
Illusive pregnancy (phantom tumors and other swellings)	68
Childbed fever	69
Superabundance of milk.....	70
Painful nipples.....	71
Insufficient milk	73
Painful breasts.....	74

“ “ “

In connection with the above and on the page opposite this reproduced register of contents, alone and in display set-up, was printed the following foreword or admonition concerning the discussion of the ailments and treatment procedures for women which followed:

ADMONITION TO THE READER

This portion of the book contains not a few items of a more intimate character which, while recorded for the benefit of the sincere and kind-hearted only, might be used by the vicious for mischievous purposes. Against their practices I again and most urgently warn the reader.

In the first place, let the reader use nothing without much consideration and serious forethought, as the best of medicaments are often more harmful than beneficial when not properly compounded and carefully used. Moreover, the reader must not use for knavish purposes that which God has made for the good of mankind. Incur not therefore the wrath of God, nor draw down on yourself both temporal shame and eternal punishment.

secured a goodly quantity of grease, with which salve the affected parts."

"For *irregular or insufficient menstruation*, fill a little bag with myrrh, press to the abdomen; keep quiet and warm. Or cut off the right forefoot of a living mole and of the blood that trickles from the wound give about three drops in wine. That will restore the flow or cure the pain."

"For *too profuse a flow*, cut several nutmegs small, add wheat flour, and make a dough; bake. Apply, as hot as the patient can stand it, to the navel and the privy parts until the flow subsides."

"To cure *the whites (leucorrhoea)* or any *malady of the uterus*, take cow manure as promptly as you can get it to the patient, so as to be still warm, add a good draft of wine with some cloves, stir well and give the patient a hot drink of it. Keep her well covered and get her into a heavy sweat. That will help."

"Nothing will bring about *pregnancy* quicker than fresh eggs eaten on an empty stomach; they must be eggs of hens left without a rooster for at least a month. Or take some of the foam from a rabbit's mouth when gnawing poplar wood. At the next intercourse with her husband she will conceive. Or give her rabbit meat from a female that has had young; but keep secret the kind of meat. That very night have her husband cohabit with her. Pregnancy will be sure to result."

"If in doubt as to *whether she is pregnant or not*, have the woman eat three slices of quince in sugar or honey (whichever she prefers) on an empty stomach for four weeks in succession. At the end of that time, if pregnant the fact will be more apparent, as the child has been strengthened by the remedy. If there is to be no baby, whatever there has been before will have passed out by that time."

"In *difficult parturition*, while the woman is in the throes, give her a spoonful of dog's milk. If nothing else will help, that will."

"If *after giving birth the woman lack milk*, take the udder of a cow, cook it well, slice, and bake hard; powder; add fennel, kimmel, and sugar; mix. Give three times a day in hot beer or wine, about as much as you can hold on two or three fingers. She may also eat a little of the dried powder. It will help."

"For *painful breasts*, secure a dozen crawfish eyes and one good nutmeg; powder fine, add white wine, cover well for two or three days. Give the woman a spoonful night and morning, at night at least two hours after the evening meal. Wash the breasts frequently in lye water and be very circumspect with food and drink."

SIXTEENTH CENTURY REMEDIES FOR FEVERS

Fever, or any sickness in which fever is the dominant feature:

"Secure the hearts of three pickerel, keep about an hour in sharp vinegar, and eat raw. This has long been a famous remedy in Italy, especially in Venice. It is a very current practice in any case of fever to open the median (cephalic) vein of the arm, no matter which arm. This gives immediate relief and will prevent a recurrence of the fever for a year at least. For a *three-day fever* try your best to have the patient swallow a fresh pickerel heart at one gulp; if impossible, get it into him as best you can."

"For *hectic or severe loss of weight (consumption)*, take some woman's milk and an equal quantity of almond oil; with the mixture rub the whole breast of the patient with your hand, gently and long, especially after giving the patient a bath. It is always best to secure the milk from the mother of a girl baby. For greater effectiveness, add a small quantity of gum arabic. As an inner remedy for the same malady, secure a large quantity of large crawfish, wash thoroughly and dry carefully; put into a clean pot and pour goat's milk on them; let stand until all the crawfish are dead." ["*Quod ego non probarim*," adds the medicus.] "Then boil well together. You may add some sage and hyssop, about a handful of each, according to the number of crawfish. Give the patient a hot gobletful of the liquor three hours before eating and before going to sleep at night."

"For *erysipelas*, wherever it may occur, apply goat's milk while yet warm from the animal to all the red and swollen parts."

"In any *pestilence*, have garlic juice mixed in hot wine with vinegar and theriaca. Give a spoonful. If it is not retained, force it into the patient, keeping his mouth closed with a thick slice of bread. Or take an onion; put into it a quantity of theriac [this seems to have been the panacea for all sweepingly prevalent sicknesses: the "flu" probably, or the "black death"] and bake in hot ashes. As soon as soft add a spoonful of good vinegar. Stir well and squeeze the mixture through a cloth. Heat again, give to the patient, and put him into a good sweat. Take a live rooster, pluck his breast feathers, and bind him, living, to the patient's *sore places, boils, and swellings*, and effect a cure. Be sure to bury the rooster after having proceeded as directed. Instead of a rooster, many take a green frog and bind it, living, upon the swellings, keeping it there until it dies. Note that if the frog turns white, it is a sure sign it has drawn the poison to itself, and a cure is likely to follow. This is a remedy, however, to be used with extreme caution, since anything cold is apt to do more harm than good."

SIXTEENTH CENTURY REMEDIES FOR WOUNDS*

"*Wounds, no matter how produced*, whether through stabbing, cutting, hitting, falling, shooting, falling into or onto something, be it iron or other metal, thorns, or anything sharp or blunt whatever, which may injure the skin or flesh of any part of the body:

"If *produced with iron or any weapon whatever*, secure the weapon if you can and bury it deep in the soil until a cure is effected; then you may pull it out again. After burying the weapon, take root of meadow saffron, pound well in a pestle, with a few drops of vinegar, make a plaster of the mixture and apply on a cloth to the wound. But if *the wound is very deep*, some of the remedy must be inserted into it, to speed healing and prevent swelling. Reapply the plaster whenever dry, and continue till healed. If the wound has been made with wood, a splinter or thorn or the like, use the foregoing as directed; whatever entered the body will be drawn out without danger of swelling, festering, or excessive pain.

"Another fine remedy for *wounds*, originating with the world-famous surgeon Monsieur Hansen of Paris, is to take white of egg, honey, finely powdered bruise-wort, rose oil, linseed oil, ribwort, and endive juice, equal quantities; mix; dip perfectly clean hemp or flax into the mixture, to make a plaster bandage, the broader the better, and apply to the wound, first putting a little hot turpentine on it. But under no circumstances use turpentine if it is a *skull wound*, especially if the brain is exposed, though you may put a little on a feather and pass softly over the wound, avoiding getting any of it on the skin of the brain.

* Ed. Note:—After reading some of these sixteenth century remedies for wounds, as used by Europeans, one can with profit turn to the May 1930 issue of California and Western Medicine, page 375, where an item is printed on certain surgical procedures in vogue among some of the natives in equatorial Brazil, at the headwaters of the Amazon.—G. H. K.

But the bandage with the remedy you may keep on the head continually, renewing it from time to time until the wound is healed. Give the wounded person a small quantity of pimpernel and dog's mercury powdered and mixed, administered in wine. If retained, you may confidently look for recovery; if the patient spits it out, it is a bad sign and the chances are that he will die.

"For *festering wounds*, secure strawberry bushes, dry, burn to powder, and sprinkle into the wound.

"For *worms in wounds*, use hot grease or tallow; drop a bit into the festering places; this will not only kill the grubs, which will fall out, but speed recovery. It is also effective for cattle.

"To *open a wound* that has not healed properly, secure some urine from a three-year-old boy, mix with burnt chalk into a soft paste, and apply. That will open the wound without unnecessary pain.

"To *draw out an iron arrowhead, or a bullet*, take gander droppings and apply night and morning to the wound. This will draw the missile near enough to where it entered for you to pluck it out with your fingers. If applied in time it will also prevent festering. If it is impossible to remove the arrow or bullet, secure some unslaked lime, about a handful, several living crawfish, several fresh hen's eggs, a spoonful of good honey, several ounces each of ground mastie and good theriae, and mash all thoroughly in the pestle to the consistency of a thick porridge. Make a plaster large enough to cover the wound and apply on a hempen bandage. Renew frequently and it will heal the wound, though it may or may not remove the missile. Give the patient from time to time a draught of quinee juice into which you have mixed a small quantity of saffron and wine-vinegar, to keep him alive.

"*Splinters of glass or wood* are frequently drawn out with an ointment made of ground garlic and gladiolus. It will soothe the pain, too, and prove healing.

"Do not attempt to *staunch the blood from a wound* caused by weapons, etc., but let it flow as long as it will; otherwise you are apt to kill the patient; for if it does not come out it will run inwardly and coagulate in the body, and the injured one will at best be crippled or a chronic patient for life. So pay no attention to the wailing mob about you begging you to stop the bleeding lest the man die. Assuredly he will not die of that feature of the injury; it is certainly far better to let him bleed than for the blood to fill his belly. Wait till the bleeding has stopped completely and then bandage the wound, and not before. The only thing you can do to lessen the bleeding is to give the injured one an occasional drink of burnt bruisewort [symphytum officinale]; and you might apply myrrh in cold-water bandages to his hands and feet which will help to check the flow of blood. Indeed, having been shot, it will be well if the man bleed lively, even though it may mean a sick-bed for some time to come. That is infinitely better than any attempt to staunch the flow of blood; the patient will recover all the more quickly."

SIXTEENTH CENTURY REMEDIES FOR WOUNDS,
CANCER, SYPHILIS, AND MISCELLANEOUS
CONDITIONS

"An excellent *healing drink* is made of a quantity of crawfish eyes, to each nine of which a nutmeg; mash fine together; put into a pot of good strong wine; seal well to preserve the aroma; let stand a while. Give the patient a heaped tablespoonful mornings on an empty stomach and at night before dropping to sleep."

"For *sore breast*, no matter what the malady, lave frequently with lye water and place a brown cabbage leaf on the breast."

"For *synovial secretions*: Secure the leg of a human skeleton; burn to powder in a new pot, as fine as flour; knead into small dough cakes and dry in the sun; bake in a clean pot. Now burn some alum and moisten with brandy. Then take an ounce each of

Register über die letzte III. Theil.
Des III. Theils.
Für das Fieber in gemein. 158
Für das dreitägig Fieber. 159
Für das viertägig Fieber. 161
Für allerlei Zufall in Fiebern. 162
Für die Hectica, oder Schwindsuche. 163
Für das Verlaufen. 169
Für die Pestilenz. 176. 413
Für die Pestilenzische Beulen. 206. 207
Für eingenommen Gifte. 209. 417. 418
Des III. Theils/ von der Wundargney.
Von allerlei Wunden. 211
Wie man ein Wunden heffen soll. 212
M. Hansen von Paris erstes Gebänd. 221
Wie allerlei Wunden zu heilen sein. 223
Für abgeschwene Schindern. 217
Für Geschwür der Wunden. 223
Für fließende Wunden. 224
Für heffende Wunden. 225
Wann die Wunden in eitelich tagen nicht ist gebunden worden. 224
Für Schwinden der Wunden. 224
Wann ein Wund zu bald zu heilet. 225
Wann ein Fleisch über die Bein will wachsen. 225
Für Wund in Wunden. 225
Für Such. 223
Nur und Kugeln auf den Wunden zu ziehen. 227. 228. 229
Wann ein Spindel oder anders ist durch ein Glied gangen. 230
Für gefangene Spreissen. 231. 233
Wundstellungen. 233
Wundtänzer. 242
Für das Blutwasser. 233
Wundschmerzen. 261
Für vergiffte Schiße. 267
Brand salben für allerlei Brand/ wann es auch geschehen sey. 269
III III
Für

Fig. 6.—A page from the contents of Part III, dealing with certain fevers and with certain wounds. Translation follows:

REGISTER OF THE LAST OR THIRD PART
THE THIRD PART
Page
On fevers in general 153
On three-day fever..... 159
On four-day fever..... 161
On various contingencies with fever..... 162
On hectic fever, or consumption..... 163
On erysipelas 169
On the pestilence 176, 413
On pestilential boils [swellings—buboes ?]..... 206, 207
On poison taken inwardly..... 209, 417, 418
THE FOURTH PART—ON THE CARE OF WOUNDS
Wounds in general..... 211
How to stitch wounds..... 212
Medicaments from M. Hansen of Paris, Folio I..... 221
How to heal divers wounds..... 220
Regarding cut-off sinews and veins..... 217
Swollen (or ulcerating) sores..... 223
Running sores..... 224
Smarting sores..... 225
Wounds unbandaged for some days..... 224
Festering sores 224
When a wound heals too rapidly..... 225
When flesh will not grow over bones..... 225
Worms in sores..... 225
Stab wounds..... 223
To remove arrows or bullets from wounds..... 227-229
When a spindle or the like has gone through a limb..... 230
To remove thorns, splinters, and the like..... 232, 233
To staunch the blood..... 233
Potions for the wounded..... 242
Synovial secretions 253
Caries (ulcerations) 261
Poison-shot wounds 267
Salves for gangrene, whatever the cause..... 269

the cakes and the alum and add some rosewater, brandy, and white incense; mix thoroughly; dry in the sun. Before applying, pulverize and add white of egg; use just as you would any egg plaster. This will stop the secretions. *Probatum.*"

"Any wound caused by scalding, burning, gunshot-wound burns, etc., will be readily healed by the following remedy, known as the 'Georg Neubaeken Pulverlöschung': Take nine living crawfish [nine seems to be a magic number in effecting cures. Why?] mash, and secure all the juice; add a tumblerful of night-

shade juice and of leek juice; mix well. Before applying, smear a little lard into the wound, which will be sure to heal, with the help of God."

"One of the most effective cures of *gunshot wounds* in the late Peasant's War was the juice of sauerkraut freshly taken from the barrel, well strained through a cloth. Soak a cloth with it and apply. For severe injury, add a little white vitriol; for lighter wounds, the white of an egg added will make the kraut juice yet more effective." [Nowadays they take the stuff inwardly as a general prophylaxis.]

"Fresh quince juice squeezed into a *wound* will always draw out its *poison*. More effective still is the powder filed from the forehead of a human skull and given to the patient in water or, better, beer. This will help promptly."

"For *coagulated blood*: Take a handful of rain-worms; put into sand, in which let them crawl about; then wash them well in clean water and mash thoroughly in a mortar; secure all the juice and mix with olive oil. Heat, and give the patient a drink of it every three or four hours, in beer, wine, vinegar, or, best of all, in neat's-tongue water."

"Rain-worms are also an excellent remedy for *injured veins and for shrunken limbs*. Secure as many as you can and bind them, living, to the suffering, maimed, or injured parts, until they die. Then add a new lot, and keep renewing until they cease to die. All you need to do then is to apply the following salve until a complete cure is effected: eight grams each of dialthac agrippae, cow marrow, snake grease, badger grease, hen grease, oil of camomile, oil of dill; add a little wax and you have a most effective salve. *Probatum.*"

"Pure capon grease, smeared into wounds or applied to *shrunken veins*, well bound with a dog-skin bandage, is very helpful; it will lengthen the veins even if you are on the point of growing lame."

"If *bitten by a mad dog or wild animal*, especially if the wound is large and bleeds but little, take a sharp knife and cut well into the wound, causing it to bleed freely. Now take a linen cloth, moisten in olive oil, and place on the wound. Next, toast some bread and bind very hot on wound and oil. This will draw the poison out of the wound, which will heal like any other injury. But make sure to bury the bread and bandage after using, or they will infect others. Don't be in too great a hurry about the cure."

"For *snake bites, spider bites, and the like*, take a living hen or rooster and pluck the feathers from the rump; hold that part solidly over the wound and it will draw out the poison. Should the chicken die in the process, quickly secure another."

"Or: cut a living hen in four parts: apply one of the parts, still warm, to the injured part; keep on for about a quarter of an hour; then take the second part and keep it on for an hour; the third part likewise for an hour; but the last should remain for two hours at least. When you have removed the fourth part it will have drawn out the poison completely, with God's help."

"For *putrid or festering sores*, secure mussels you find lying on river shores; wash well; remove skin, which burn in a strong new pot, well closed. Pulverize, and strew into the wound; it will dry it up and effect a speedy cure."

"To cure *sphacelus or mortification*, secure fresh human or bull's excrement; bind with cloth to the wound. Renew when hardened. Or: take the urine of a virgin at the time of her menstruation; moisten a cloth with it; apply to the wound. *Probatum.*"

For *frozen limbs*, cat grease is excellent. You may add to it a quantity of sulphur (about a quarter of a pound, ground fine); mix with ground pepper; add a small quantity of butter; boil together and apply the mixture as a salve."

"For *mange or itching of any sort*, rub the parts frequently with the yolk of an egg to which you have

added a quantity of fine salt; take a hot bath and get into a good sweat; but see to it that your body is rubbed clean of all dirt before you get into the bath. Or: a mixture of milk, vinegar, and salt, boiled together, and applied frequently, will stop the biting and itching."

"For *whitlow suppuration or felon*, on the finger: Take the patient's own stool and bind in a bandage to the sore part. Not a very cheerful [unlusting] remedy, to be sure. Or you may take cat excrement and bind similarly to the finger. Some mix it with honey, others use it in wheat flour. Not a very cheerful process either, but a most effective one. Or you may take pig's gall if you prefer, or the gall of a fox is even better; bind, preferably, with the skin of the gall bladder."

"For *cancer, or other eating sores, or worms in the sores*: Heat the juice of peach-tree leaves, small burrs and nettles; moisten a cloth with the mixture, and apply. Or: wash the sore thoroughly in human urine; then apply a powder made of quince and living crawfish burned together in a new pot. It is well to put a little vitrioli Romani into the urine. Another excellent remedy: moisten a cloth in *menstruo mulieris* and apply. That will help if applied in time; if too late, the application will hurt insufferably a short time before the patient's death. Sheep manure applied while yet warm is another excellent remedy for cancer. Or: take the tongue of a wolf, dry thoroughly, powder; make into a salve with flour and honey. Before applying, wash the sore places well with wine."

"For the *French malady (syphilis)*, smear the affected parts well with petroleum; then apply a bandage of burnt incense; use several days in succession. Or: put three grams of quicksilver into a spoonful of brandy and vinegar; add a little spittle; shake well until the quicksilver melts; add laurel oil and laurel powder; mix in a pot with the quicksilver. Apply the salve to the affected parts."

"For *warts*, apply rainwater taken from cow droppings. Or: take a number of black snails and boil in water, with which wash the warts frequently. Or: put the snails into a pot; sprinkle generously with salt; use the resultant fluid as a wash. Or: mix equal quantities of salt, mustard, and sulphur in vinegar; wash your hands with the mixture."

IN CONCLUSION

So far, the translations. They constitute, of course, but a small part of this voluminous old book of medicaments, which is now owned by the editor of CALIFORNIA AND WESTERN MEDICINE. The book contains many hundreds of prescriptions of all sorts. The choice of excerpts was naturally dictated more or less by the startling character of a particular recipe, or else this article would have assumed undue proportions. It must be remembered that the *Artzneybuch* contains any number of prescriptions that are not very unlike those still used by any housewife, or the man in the street, in preference to the recipe of the legitimate physician. And for that matter, the book gives many a prescription that might readily find a place or still has a place in the *materia medica* of any modern reputable doctor.

Another thing. The reader should not hastily conclude that this medical treatise is representative merely of the state of medicine in the Germany of the period. Throughout the *Artzneybuch*

occur references to and grateful acknowledgments of this and that physician of France, Italy, and other countries to whom Court Physician Gäbelthouer feels himself indebted for a specific prescription. Hofmedicus Gäbelthouer is chiefly a compiler of what up to his time had survived as best and most effectively tried in medicine everywhere. Let the reader but refer to the very interesting history of medicine pointed out in the footnote to the title of Part I of the present article: "Devils, Drugs and Doctors," the strongly illuminating work of Dr. Howard W. Haggard of Yale. Let me quote from it a single representative paragraph in substantiation of what I have just said. It occurs on page 328:

Disgusting substances formerly were used as drugs, largely because of the impression they make on the sufferer. Such substances were extensively employed because they were cheaper than mummy, unicorn's horn, bezoars, pearls, and potable gold, which were the remedies of the nobility. Cotton Mather used crushed sow bugs in his practice and body lice, and incinerated toads have also had their place in medicine. When Robert Boyle expurgated the pharmacopeia of its most dubious remedies, he nevertheless included in the revised list the sole of an old shoe "worn by some men that walked much," which was to be ground up and taken internally for dysentery. Insects, toads, and old shoes were the least objectionable of the many remedies of that age. In the late Middle Ages the apothecaries of Europe complained that most of the crocodile dung they received from Egypt was adulterated by dishonest traders. Excrement and urine have had a notable place in medicine, and Pliny in his "Natural History" speaks highly of the medicinal virtues of menstrual blood. This last substance, in addition to its effect on disease, would kill insect pests at a distance and even quell storms at sea. The physicians of the sixteenth and seventeenth centuries apparently tried to make the deaths of their patients as unpleasant as possible; when Cardinal Richelieu was on his death-bed a female charlatan prescribed for him a mixture of horse dung in white wine, and the cardinal drank it. In the eighteenth century Fauchard, a Frenchman who made notable contributions to dentistry, advised his patients to use their own urine as a mouth wash in case of toothache. Urine was an old remedy, but subject to occasional revival; Madame de Sévigné recommended it highly in the eighteenth century.

The comments given with the excerpts are those of a layman, a student and teacher of Spanish, who has lately been intimately studying the works of a Spanish novelist and essayist, Ricardo León, who finds everything splendid in "the good old times" and everything pretty bad in our day. I wonder if the old times would seem so good to Ricardo León after reading a medical work like the *Artzneybuch* or Haggard's startling volume, "Devils, Drugs and Doctors."

And as a final word, the translator wishes to make it clear that he has made no research in medical literature of the *Artzneybuch's* period; he is merely the translator and commentator of what, on the face of things, appears to be a representative and authentic work on the medical practices of the Germany of the sixteenth century.

University of California at Los Angeles.

CLINICAL NOTES AND CASE REPORTS

THE PROBLEM OF THE SKIN GRAFT*

WITH DESCRIPTION OF NEWER TECHNIQUE

By H. L. UPDEGRAFF, M. D.

Hollywood

THE collector of old medical books will assure us the problem of skin graft is one whose existence was undoubtedly recognized by the early Hindu surgeons, whose works comprise the borderland of early surgery.

The literature up to ten years ago was sustained largely by recapitulations of the work of Thiersch, Wolfe, Krause, and others, and has been admirably reviewed by Davis, Neuhof, and Hunt. The avalanche of cases with epithelial defects engendered by the Great War stimulated research of the question why measures successful in the hands of many were yet fraught with dangers of failure and avoided by the majority.

The result has been at the present day that confidence has been greatly restored by the knowledge that the average graft will survive in a large percentage of cases if ordinary asepsis is maintained along with sufficient pressure of the dressings to approximate normal tension. This holds true for the thin (Thiersch), split, and full (Wolfe) skin grafts, all of which exist for the first four or five postoperative days as parasites in their own and surrounding lymph juices.

CHOICE OF GRAFT

The problem of which type of graft to use is one for the individual exercise of judgment. The depth of the defect to be closed, the character of the base, and the ability of surrounding tissues to sustain pressure, are factors of importance. The cosmetic effect of final coloration is biased by the thin graft's tendency to reddish discoloration and the full graft's likelihood of tanning. The size of the graft is limited physically by the ability to keep correct pressure on it during dressing. Grafts should be cut to fit accurately, with the exception of the thin grafts which are cut large so as to overlap either the defect edge or adjoining graft. Drainage should be by perforation and anchorage of all grafts by suturing (waxed silk), to insure normal tension. The more delicate the graft, the less handling the better. The pinch graft has been abandoned along with the forlorn hope of autografts, even with similar blood typing.

The universally accepted preparation of skin for use as a graft seems to be thorough scrubbing with soap and water, followed by rubbing with ether until the skin is glowing. The treatment of the area to be grafted consists of relief of constrictions if present, which involves undercutting and trimming of area edges sufficient to present

* Read before the Southern California Medical Association, Santa Ana, April 5, 1930.

an acceptable suturing edge. An area covered by granulations should be sliced off flatly until a yellow scar base is reached. Control of hemorrhage is made by pressure while the graft is being cut to insure a recipient dry bed. When preparing to graft a potentially infected area, such as an old carbuncle site, it should be borne in mind that a complete new setup of instruments and sterile goods is necessary that infection be not carried from the field to be grafted to the area furnishing the graft.

The advance in technique knowledge allows more daring in plans. Very large full thickness grafts may be contemplated with assurance if first elevated on three sides and resealed for a period of ten days with proper drainage. Hair-bearing grafts as a rule do better if the donor site is shaved for a week before and exposed to air and sunlight during the interim. Total rhinoplasties have proved very successful through the elevation of the forehead flap and the planting of a graft, thin or thick, on the underside of the flap, depending on depth of nasal deformity necessary to replace. The graft attachment offers a splinting against contracture which allows cutting the flap almost to size. The success of the Esser inlay in optic, nasal, and oral cavities, has led to its use in the construction of congenitally absent ear canals and deficiencies of vaginal vault, urethra, and imperforate rectum.

The general acceptance of the pressure dressing has given an easily applied more or less standardized procedure. The use of parresine mesh impregnated with three per cent xeroform unguent with a petrolatum base offers an antiseptic medium with a splinting and draining capacity. This combination with a moist marine sponge applied with firm bandage pressure approximating the feel of a tense deltoid muscle gives our best results (Fig. 1).

Correct pressure dressings are difficult unless satisfactory immobilization can be obtained. Use of plaster of Paris, splints, bandages, pressure bags, sand bags, rubber sponges, body position, stent inlays, nasal splints—all contribute to the

solution of the particular problem at hand. The pendulum has seemingly swung away from the idea of laying on the graft and protecting it by a wire cage. The goal striven for is the normal close apposition of the skin to underlying tissues for a length of time sufficient to permit a new circulation to be established.

INFECTED GRAFTS

Early recognition of infection in a graft and its treatment are usually regulated by experience. Grafts, under pressure, which become infected usually register quickly a septic temperature, malaise, and a feeling that all is not well at the graft area. If in doubt, there is no reason why the graft should not be inspected at once, the few moments release of pressure not being important. Contrary to accepted belief, we have found tincture of iodine as distinctly beneficial and not injurious to the graft. Yellow mercuric oxide unguent, one per cent, is an excellent emollient when the epithelial layer is denuded. Dressings once or twice daily during the critical periods are oftentimes indicated if appreciable salvage is to be had. Warm moist dressings after the tenth day are of value.

The use of heliotherapy in preparing the area to be grafted and in treatment of the denuded grafted area if an epithelial slough takes place, is an important help. In aged or debilitated patients with a negative urine the administration of 50 to 200 grams of dextrose per os each day, followed by one unit of insulin to each 10 grams of dextrose in an hour's time, is an aid both in pre- and postoperative treatment.

Skin grafts on the face, head, and neck present an added difficulty in surgical technique, due to anesthesia. Even in using local anesthesia, hemorrhage into the nose or mouth is a problem, not only because of soiling of the field but also because of postoperative vomiting, which contaminates and displaces dressings. We have been greatly benefited by the use of the intratracheal tube which tends to obliterate the pharyngeal opening, thus allowing irrigation and aspiration of the mouth and nose as well as keeping blood and mucus from being swallowed or aspirated. Patients who are faced with the necessity of repeated operative stages do well with sodium amytal induction in their rooms, followed by intratracheal anesthesia with ethylene gas. In some long-drawn-out head cases we have combined, with very satisfactory results, the use of a sodium amytal, intratracheal tube in place and an oil ether colonic anesthesia.

The average surgical textbook depicts the methods used in cutting the various grafts. Where there is any suggestion of developing a hypertrophied scar at the site from which the graft is taken, we have found it better to cut a full thickness graft and shave it to desired thickness from the inner side. The resultant deficient area from which the skin is taken can usually be drawn together with a much better cosmetic result by adequate undercutting or use of recognized

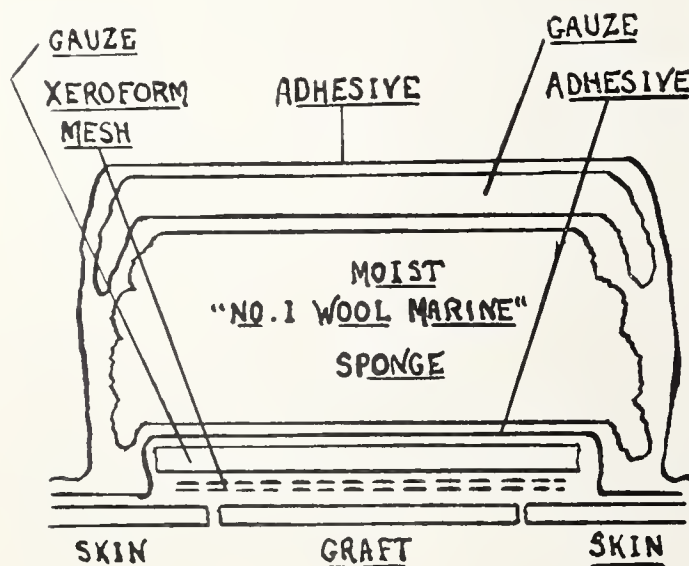


Figure 1

plastic procedures such as sliding flaps or necessary ground-gaining incisions.

We have been using with satisfaction a combination graft so cut as to embody all three types, where the problem has been to fill a defect with a deeper crater than edge.

SUMMARY

1. Grafts are parasitic for the first four to five days of implantation.

2. Type of graft to be used depends on thickness and coloration desired.

3. Preparation of donor area and graft site are simple cleanliness and control of hemorrhage.

4. Marine sponge pressure dressing is best all-around measure.

5. Infected grafts should be dressed daily or oftener. Dextrose and insulin administration are of benefit.

6. Sodium amytal, intratracheal and rectal anesthesia in selected cases offer a medium, allowing a greater latitude for work.

7. The possibility of a single graft so cut as to embody a thin edge and thick center is to be remembered.

6777 Hollywood Boulevard.

surface of the Abbé condenser of the ordinary microscope, will make a darkfield apparatus for examinations for the *Spirochaeta pallida*. The high, dry (4 millimeter) objective is used, and the light regulated with the lower shutter of the condenser. I have used this method, but prefer the greater magnification and detail obtained by the oil immersion lens. This objective may be used, provided it is equipped with a funnel stop, which is inserted into the casing of the objective above the lens system. By cutting down the normal aperture, this stop prevents the diffuse glare which otherwise obscures the field. The price of a stop is about ninety cents.

Proper illumination for darkfield work is best obtained by using a 75 to 100 watt lamp. This should be enclosed or covered to prevent glare on the eyes, and its rays should be on a level with the reflecting mirror of the microscope.

When the specimen to be examined and the microscope are in readiness, a drop of immersion oil is placed on the upper surface of the condenser, which should be level with the stage of the microscope. Next the slide is placed on the stage so that its undersurface makes even contact with the oil without bubbles. Then another drop of immersion oil is placed on the cover slip, and the specimen is ready for examination with the oil immersion objective in the usual way. An excellent darkfield may be thus obtained.

Stanford University Medical School.

IMPROVISED DARKFIELD APPARATUS*

By S. E. LIGHT, M. D.
San Francisco

EACH year a great many patients with primary lesions of syphilis go undiagnosed and untreated. A recent review of 838 histories of luetic patients at Stanford indicates that in many instances physicians saw these patients and failed in diagnosis. A large number would have been recognized and treatment instituted in the most auspicious stage had the physicians been equipped for darkfield examinations.

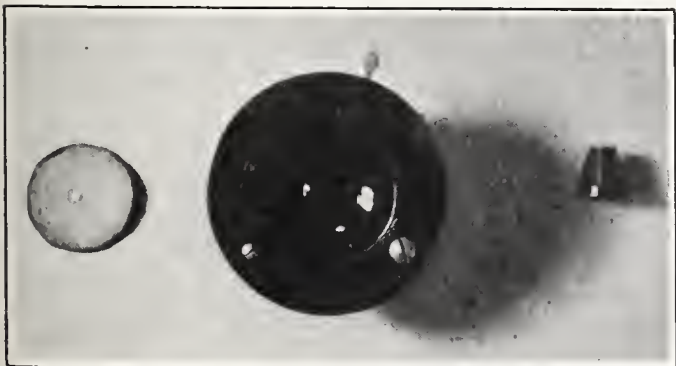
With this in mind, I wish to bring to attention a simple and practical method of improvising a darkfield, described by Coffin in 1920 (*Journal American Medical Association*, May 22), using the ordinary laboratory microscope, with which every office is equipped. According to Coffin, a piece of black paper, the size and shape of a quarter, pasted on the center of the lower convex

* From the skin and syphilis clinic of Stanford University Medical School, San Francisco.

Radium for the New York State Institute.—A contract, representing an expenditure of more than \$291,000 for 5735 milligrams of radium and accessory equipment to be delivered to the State Institute for the Study of Malignant Diseases at Buffalo, was recently signed by Dr. Thomas Parran, Jr., State Commissioner of Health. Certificates of the United States Bureau of Standards attesting the quantity of radium element will be delivered with the material. The purchase was made possible by an appropriation of \$300,000 for the purpose at the last session of the state legislature. With the acquisition of this additional radium, the institute, so far as known, will possess the largest single supply in the world.

The State Institute for the Study of Malignant Diseases is under the supervision and control of the state department of health. It was created for the purpose of conducting "investigations into the cause, nature, mortality rate, treatment, prevention and cure of cancer and allied diseases," and is authorized to "receive in its hospital for study, experimental or other treatment, cases of cancer and allied diseases free of charge." There are records of over eight hundred cured cases of malignant disease in the institute files.—*Health News*, July 14, 1930.

The Marie Curie Radium Institute of Warsaw.—Because of a year's delay in obtaining radium for the Marie Curie Radium Institute of Warsaw, for which Madame Curie was given \$50,000 in 1929 by a group of Americans, the hospital will not be able to open its doors until December. The delay has had its advantages, however, for the interest on the money will be sufficient to purchase platinum screens for the radium when it becomes available. Madame Curie said that the demand for radium was now so great that the producers are far behind in filling their orders. Only one gram is required for the Warsaw hospital, and, although it was ordered last November when Madame Curie returned with the purchase money, its delivery will require another five months.—*Science*, July 25, 1930.



Abbé condenser, funnel stop and paper, showing size of the paper in comparison to the inferior surface of the condenser where it is to be pasted.

BEDSIDE MEDICINE FOR BEDSIDE DOCTORS

An open forum for brief discussions of the workaday problems of the bedside doctor. Suggestions for subjects for discussion invited.

ACUTE POLIOMYELITIS

ETIOLOGY

GEORGE M. STEVENS, LOS ANGELES.—In 1909, Landsteiner and Popper produced experimental poliomyelitis in monkeys from washings present in the brain and spinal cord substance. Very soon after this, Flexner and Lewis, Landsteiner and Levaditi, and others succeeded in transmitting the disease from monkey to monkey and definitely proved that the specific cause lay in a filtrable virus, found at times in the central nervous system, in and on the mucous membranes of the gastrointestinal tract, in the adjacent lymph nodes, in the tonsils and salivary glands of those afflicted, also that it was not found to an appreciable extent in the spinal fluid or the blood.

The virus passes easily through a "Berkefeld" filter, less rapidly through "Chamberland's."

Man is the only animal subject to poliomyelitis and to epidemics thereof.

The only other animal susceptible is the monkey, then only in an experimental way, when the virus has been stepped up.

The virus withstands exposure to heat, cold, light and drying rather more than do ordinary bacteria. It retains its virulence or oftener increases it in the height of summer heat. It is not destroyed by the ordinary weak antiseptics so frequently applied to the nose and throat. It will keep in glycerol five or six years and is not injured by a 0.5 per cent phenol.

It is rendered innocuous by heating one-half hour at a temperature between 45 degrees to 50 degrees Centigrade. There are great variations in the strength of the virus both as it occurs in humans and experimentally in monkeys.

At times it assumes extreme virulency, most epidemics occurring during the hot summer months.

The virus produces an active immunity in both monkeys and man; the blood serum from convalescents contains substances that neutralize the virus in both.

Some investigators question whether filtrable viruses are really living organisms and not rather of a chemical nature similar to enzymes. Because microbic origin has been proven in many diseases it does not necessarily follow that filtrable viruses contain minute organisms of a like nature.

What is the nature, then, of the globoid bodies of Flexner? The first eight and even the twentieth transplant of these bodies produced typical experimental poliomyelitis and yet experiments directed to show an immunological relationship were negative. The present working hypothesis is that the globoid bodies absorb and either chemically or mechanically afford proper respiratory conditions for the nurture of the true virus.

It would seem that streptococci and other coccic organisms found at times are merely secondary invaders.

It is a maxim in Preventive Medicine that those diseases most difficult to prevent or control are the ones in which there are the greatest number of healthy carriers.

It has been proven experimentally with monkeys that contacts with poliomyelitis, although themselves healthy, are nearly always carriers. No other disease that assumes epidemic proportions has so large a number.

Given.—1. The specific virus. 2. Increased activation of virus. 3. Susceptibles. 4. A horde of healthy carriers with constant mixing of population.

Result.—An epidemic of poliomyelitis lasting until all susceptibles have had the disease or the virus has lost its high virulency.

* * *

TREATMENT

GEORGE E. EBRIGHT, SAN FRANCISCO.—From the study of the epidemics of poliomyelitis in California in 1925, 1927, 1929 and 1930, I am of the opinion that the unrecognizable healthy carrier is the largest factor in the transmission of the disease and that the adult carrier is more a factor than the juvenile carrier.

It is very probable that the adult more often than the child can harbor the active virus in the nasopharyngeal secretions and not be made ill thereby.

Observations throughout California in 1927 showed that the opening of public schools in the late summer had no influence in checking the recession of the epidemic then waning. In August, 1930, the thousands of children who, on hot days, thronged the ocean beaches for a hundred miles caused no increase in the number of cases reported.

However, active cases should be quarantined and contacts should be isolated, although when the contacts are wage-earners, in the present lack of more certain knowledge of the transmission of the disease, too rigid measures of isolation cause more privation than is justifiable.

Certain definite fallacies should be combated because they activate a deplorable state of panic in the public mind:

1. Swimming pools should *not* be closed on account of poliomyelitis, nor should any other healthful outdoor exercise be curtailed. There is no evidence that the congregation of children about swimming pools or bathing beaches spreads the disease. The evidence is to the contrary. There is no satisfactory evidence that the virus remains active in the water of swimming pools. By far the most of the pools in California are chlorinated and the water contains more than enough free chlorine to rapidly destroy the virus of any disease. This has been brought about by the law and by public sentiment.

2. Schools should *not* be closed on account of poliomyelitis. This dictum may be based on the observations of the State Board of Health in the 1927 epidemic. Moreover children are under better supervision in schools than on the streets, and the indisposition of individuals more quickly recognized.

Individual Treatment.—Early diagnosis, early hospitalization, rest in bed, and early treatment with immune serum and after-care enable much more to be now accomplished than ever before.

Any indisposition with fever that cannot be readily explained should lead to the suspicion of poliomyelitis, especially during an epidemic. Headache, tenderness or stiffness of the neck and back muscles with paresthesias of the trunk or limbs are some of the indications for a spinal puncture which will disclose a clear spinal fluid with an increased cell count. A child in the preparalytic stage does not like to be moved. It hurts. The neck hurts. The neck may be quite stiff. The back may be sensitive. Sometimes these things do *not* happen, but they should not be overlooked.

Acute diarrheas arouse suspicion, also unaccountable nausea or vomiting should lead to a critical examination of the central nervous system.

Children who have been definitely exposed should be carefully watched for two or three weeks. It is known that the incubation varies.

Aycock and Luther¹ in experimental poliomyelitis in monkeys with unmodified serum demonstrated incubation from three to sixteen days and with modified serum as long as twenty-six days.

Once the diagnosis is made, convalescent serum should be given intramuscularly at once, 500 cubic centimeters to a child and 100 cubic centimeters to an adult. This is by far best given in the preparalytic stage, but should be given even if paralysis has supervened.

Intrathecal dosage may be used but *not more than once*.

The usual precautions against anaphylaxis should be observed, although human serum does not so often cause trouble as does horse serum.

Results of Treatment with Convalescent Serum.—Series one:² 1083 untreated cases, 165 deaths, case fatality rate 15.2 per cent; 106 treated cases, one death, case fatality rate 0.9 per cent.

Series two:³ Seventy-four patients given serum in preparalytic stage, no deaths. Residual paralysis 6.7 per cent. Eighty-seven patients not given serum in preparalytic stage, seventeen deaths or 19.5 per cent. Residual paralysis in forty-nine or 52.3 per cent.

REPORT OF A CASE

Mrs. X—age 45—housewife. Good surroundings. Excellent general health.

Present illness:

August 3, 1930.—Five or six loose stools—no fever.

August 4.—Slight back pains.

August 5.—Increased pains in back.

August 6.—Severe headache—pains in neck and back radiating to front—no fever—definite chill in evening.

August 7.—On examination: Very severe headache—severe pains in neck and back radiating to front.

Chest and abdomen, thighs and legs feel numb. Temperature 100.2 to 101.6, pulse 100. Respirations 20-25. Neck very spastic, flexion of neck causing severe pain in neck and back. No Koenig. Normal eye and tendon reflexes. Retinae negative. Visceral organs negative. Spinal fluid clear, normal pressure, cell count 143 per cubic millimeter, chiefly polynuclears. Search for meningococci negative.

August 8.—Condition unchanged except increased stiffness of neck; headache very severe. Convalescent serum obtained and 20 cubic centimeters given into gluteal muscles. In two hours pains in neck and back disappeared and the headache was completely relieved. A few hours later 30 cubic centimeters of the serum were given. (It would have been better had 100 cubic centimeters as an initial dose been given.)

The following day patient felt perfectly comfortable, headache, backache and neck pains and paresthesias of limbs had disappeared since the administration of serum. The temperature, which had ranged from 100.2° to 101.6°, remained at 100, and by the third day following came to normal by lysis. The pulse dropped from a rate of 80 to 90, to 70. Respirations that had ranged from 20 to 25 per minute, dropped to 20. These changes to normal in pulse and temperature took place within a few hours after serum administration. Recovery was complete in five days.

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* * *

PROPHYLAXIS

MARK L. EMERSON, OAKLAND.—Infantile paralysis is rather a misnomer because adults as well as infants are likewise affected, and a very small percentage of the probable patients have paralytic symptoms. Better to call it poliomyelitis.

Looking over the spot map of California where poliomyelitis has appeared during the past few months, the highest average goes to the south. However, the rate in the north may be raised during the next few months.

In Alameda County we try to send all suspected as well as active cases to the Isolation Ward of the Baby Hospital and allow experts to handle such cases. This does not prevent the family doctor from handling the case if he wishes to. Tapping the spine will probably give first authentic information. Serum from convalescent patient is our best treatment at present; therefore, get your patient where serum is obtainable, as the supply is necessarily limited and should be reserved for proved cases and not wasted as a prophylactic measure on suspected cases. Doctors call for the serum in order to have it on hand in case future symptoms warrant its use. It is desirable to have the patient in the hands of those who are familiar with handling the same.

Two very good articles on this subject appeared in the last issue of CALIFORNIA AND WESTERN MEDICINE. The same prophylaxis applies to poliomyelitis as to any other communicable disease.

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Leaflet Regarding Rules of Publication.—California and Western Medicine has prepared a leaflet explaining its rules regarding publication. This leaflet gives suggestions on the preparation of manuscripts and of illustrations. It is suggested that contributors to this journal write to its office requesting a copy of this leaflet.

EDITORIALS

A STATE ELECTION YEAR—NEW RE-APPORTIONMENT IN THE CALIFORNIA LEGISLATURE

This Is a State Election Year.—All do or should know that this is a state election year. The recent primary election was held in August and the candidates representing the different political parties have now been nominated and await the final decision of the citizens of California, which will be rendered in the November election.

* * *

Proper Maintenance of Public Health Standards Is a Civic and Medical Responsibility.—The members of the California Medical Association and their official journal, CALIFORNIA AND WESTERN MEDICINE, are not interested in political parties or in the representatives of political parties, as such. They are, however, very much interested in the attitude which elective executive and administrative officers hold toward public health problems.

Members of the medical profession cannot escape their special responsibilities in the maintenance of proper public health standards. A foundation principle in good citizenship in a republican form of government makes it obligatory for every citizen to offer to the state the best judgment and efforts of which he or she is capable, in so far as the maintenance of govern-

mental standards having to do with the general welfare are concerned.

Medical men and women are by their training specially fitted to give superior or expert advice on the solution of public health problems. Such counsel, when given by experienced physicians to lay executives or legislators who may be holding civic positions should not fall on indifferent, unwilling or antagonistic ears. To that extent, therefore, physicians should make it their business to know somewhat of the viewpoints of candidates for public office, and to sound out such candidates as to their general attitude on public health problems of California, so that, if possible, only such candidates shall be elected to office who will give loyal support to desirable public health measures.

Such interrogation of candidates can be best done through properly constituted public policy and legislation committees of county and state medical societies, these committees in turn communicating the results and impressions obtained in such conferences with candidates, to the members of their respective societies, so that individual physicians and the friends of physicians may be placed in better position to exercise wise judgment in the selection of the candidates for whom they will cast their votes.

It is not necessary for such committees, in every instance, to espouse the candidacy of one particular candidate for each office. Where candidates with proper backgrounds and creditable past records aspire to the same office, committees on public policy and legislation can very properly state that each such candidate is acceptable, leaving it to individual medical friends of each such candidate to give such special support as under the circumstances might seem warranted, if that should be deemed necessary or desirable.

In all this work, committees on public policy and legislation should make a special effort to refrain from improper partisanship, for partisanship is only permissible under special conditions. That is, special partisanship for one candidate may be justified, when the opposing candidate has a record of real or very probable antagonism to the maintenance of proper public health standards. The reasons for such antagonism it is not necessary to emphasize, or to specially dwell upon. It is enough to know that a certain candidate is opposed, for this, that or the other reason, to sane public health legislation and administration. That fact once properly established, then such a candidate should not receive the suffrages of members of the medical profession or of those lay citizens holding viewpoints on public health that are in general accord with those held by physicians.

* * *

The New Senatorial and Assembly Reapportionment.—Members of the medical profession belong to one of the learned professions and because of special scholastic training are assumed to have an understanding of citizenship and gov-

ernmental responsibilities that measures up to or is better than the average possessed by citizens who may have been less fortunate in preliminary education. Nevertheless (probably because of the many other serious health and life problems constantly demanding the attention of physicians in their daily work), it is a question whether physicians by and large, as a guild group, keep themselves thoroughly alert on civic matters.

For instance, it would be interesting to know how many members of the California Medical Association still remember or are aware of the fact that at the last state election on November 6, 1928, a referendum creating certain changes in California senatorial and assembly districts was presented, the same having been submitted by the Forty-eighth California Legislature, and the people voting that the provisions therein contained should be enacted into law.

In the "public policy and legislation" column of the Miscellany Department of this issue of CALIFORNIA AND WESTERN MEDICINE are printed the reapportionment changes which were then made in senatorial and assembly districts. Perhaps the most important change has to do with the state senate, for no one county is now permitted to have more than one state senator, and all except a few of the very small northern counties have each one such senator, the very small population counties being divided into eleven groups of twos and threes, each of such groups having a state senator.

* * *

The Senatorial District Set Up Is Similar to That of the House of Delegates of the California Medical Association.—It is somewhat of a curious coincidence that the charters of county medical societies, as applied to county units consisting of two or more smaller county groups, which have been in operation for years in the California Medical Association, approximate somewhat the same arrangement as was adopted by the people of California only two years ago for civic government. Indeed, one state senatorial district, namely, that consisting of Mono and Inyo counties, finds our state medical association altogether unrepresented through a component county society. Readers who are interested in studying such a comparison for themselves, can do so by comparing the list already referred to, and which is printed in this issue, with the make-up of the California Medical Association House of Delegates as printed on page 269 of the April, 1930, issue of CALIFORNIA AND WESTERN MEDICINE.

The significant feature of the senatorial phase of the 1928 reapportionment lies in this, that the Assembly, which is composed of members apportioned on the basis of population, will not be able to dominate in legislative matters. That is, the larger cities and centers of population in California will not be able to dominate future legislation

through excess of representatives in both houses of the legislature, because all Assembly resolutions must receive the approval of the Senate before being passed on to the Governor for further approval and enactment into law.

It may be asked, what has all this to do with organized medicine and the maintenance of public health interests? Just this, that the smaller component county medical societies of the California Medical Association are now in the position, for the first time, where they will be able to exert what might be termed an even greater influence on prospective public health legislation than will the larger county medical societies (including cities such as San Francisco, Los Angeles, Oakland and Sacramento).

* * *

Smaller County Medical Societies Can Render Efficient Service.—Fortunately for the public health interests of California, the smaller county medical units of the California Medical Association are, as a class, quite well organized. In these smaller counties, moreover, the physicians occupy a peculiarly intimate and pleasant relationship with lay fellow citizens. This personal knowledge and contact with senatorial candidates can therefore become a most valuable aid to the California Medical Association committee on public policy and legislation. These thoughts are presented by the editor to call attention to this new development in our political and civic adjustments, and to urge our smaller county medical societies to be alert to the new responsibilities which now rest upon them.

* * *

County Society Committees on Public Policy and Legislation Should Be Active.—As has been so often stated in this column, every component county medical unit of the California Medical Association should have an alert and at this particular time, an actively working committee on public policy and legislation, to watch not only its own jurisdiction, but to maintain active relationship in state-wide endeavors with the standing committee of the California Medical Association. If our county units through their officers and committees, will take an immediate interest in the matters here outlined, the work and worries of the officers of the California Medical Association will be much lighter, and also more satisfactory during the session of the Forty-ninth Legislature, which will convene at Sacramento on January 2, 1931, than has been the case in past years. A comparatively small amount of intelligent effort exerted before the final election in November next, may give public health legislation a much better background in January, 1931, than has been noted in many recent legislative sessions. The ends to be attained more than warrant such intelligent interest and coöperation, and it is hoped that every county medical society in California will do its full part.

WOMAN'S AUXILIARY OF THE CALIFORNIA MEDICAL ASSOCIATION

History of the Auxiliary Movement in California.—The question—whether the California Medical Association would benefit from the establishment of a Woman's Auxiliary—was discussed by the Council of the California Medical Association for several years before sanction was given for the organization of such a state auxiliary. The Council then instructed one of its committees to submit to it, rules of government for such an auxiliary; and later, at the San Diego annual session on May 7, 1929, under the sponsorship of the Council, the Woman's Auxiliary of the California Medical Association was organized in formal fashion. True, that organization was only a preliminary or what might be called a foundation or initial paper organization. Yet, as so formed, the Woman's Auxiliary of the California Medical Association came into being in quiet but efficient manner, as is evidenced by the somewhat remarkable growth which has since taken place in certain counties (see August CALIFORNIA AND WESTERN MEDICINE, page 619).

Following the regular procedure of allocating for general supervision every phase of organization work to one of the standing committees of the California Medical Association, the Council subsequently assigned to the Committee on Associated Societies and Technical Groups, the responsibility of aiding in the further development of state and county auxiliaries. That committee felt that it could promote such development to best advantage in the various counties, if a leaflet were printed, in which could be presented the rules of organization which had been adopted by the Council; and in which would be indicated the best and easiest methods of procedure for establishing county auxiliaries, after plans which had been previously outlined in the editorial columns of CALIFORNIA AND WESTERN MEDICINE. The Council authorized the standing committee to compile such a leaflet, and therein were also given lines of social, philanthropic and educational activities, these having been gathered from the publications of the national woman's auxiliary (Woman's Auxiliary of the American Medical Association).

In passing, it may be stated that the national organization came into existence in 1922, as an outgrowth or development of the Texas Woman's Auxiliary, which was organized in 1919, that first state auxiliary in turn having come into being as a result of the formation of the first local woman's auxiliary in Dallas, Texas, in 1917.

Copies of this leaflet were sent from the central office of the California Medical Association to the officers of every county medical society in California, with the request that each county society aid in the organization of a local county auxiliary. The officers of the State Auxiliary who were elected at San Diego also rendered efficient aid in this effort. An educational campaign was also carried on through editorial comment, and through news items in a special

column of CALIFORNIA AND WESTERN MEDICINE. These various efforts, combined with those of the state auxiliary officers who were elected at San Diego, resulted in the formation of eleven county auxiliaries in the first year of the California State Auxiliary's existence, with a total paid up membership of something like 675 members. This was certainly an excellent beginning and those achievements may be taken as an indication that the auxiliary movement in California will continue to grow. * * *

County Medical Societies Are Again Urged to Form Woman's Auxiliaries.—The officers of all the component county medical societies of the California Medical Association, in which no auxiliaries as yet have been organized, are again urged to give this matter their consideration and support. The auxiliary leaflet which has been published gives full instructions as to best methods of procedure. It is suggested to all who are interested in prospective organization that the central office of the Association be written to with a request for such number of copies of the leaflet as may be desired. By following this method, the formation of a county auxiliary becomes a comparatively simple matter.

The California county auxiliaries which have been formed to date, already have given much pleasure to their members. As time goes on, these auxiliaries may be counted upon to give expressions of increasing service, not only to the members of the auxiliaries, but to the interests of the medical profession and also to the public health and to the general welfare of the communities in which they are established.

As to the future of the different auxiliaries, that naturally will depend in good part upon the membership and upon the officers and committees who are chosen to take the leadership in the various phases of auxiliary work.

* * *

Some Suggestions on Fundamental Procedures. If we were at this time to stress some of the important matters which each auxiliary should observe, our tabulation would include items such as the following:

1. The fundamental rules of government of procedure for each auxiliary should and must be those authorized by the Council of the California Medical Association, and as printed on pages 4, 5 and 6 of the "California Medical Association Auxiliary Leaflet." Any additional rules which might be adopted by an auxiliary must not be in conflict with these rules which were approved by the Council of the California Medical Association.

2. The officers and members of each county woman's auxiliary should keep constantly in mind that by the basic rules, the contact committee representing the local county medical society is stipulated to be the president, the vice-president and secretary of each such county medical society. The executive officers of each county auxiliary should maintain proper contacts with this advisory committee which has been provided to represent

each county medical society. All matters of policy, when of possible delicate or intricate nature, should be presented to the medical advisory committee for opinion. This provision contemplates an arrangement whereby a county auxiliary shall carry on most of its county work, as a county rather than as a state function, and in full coöperation with county medical society officers.

3. Special care should be constantly taken, that no officers or members of an auxiliary speak in the name of the local county medical society or of organized medicine, except as express permission may be granted in specific instances by the medical advisory committee.

4. The social meetings would naturally be in line with the inclination of local members. Non-expensive types of entertainment, safeguard against many dangers to the treasury and to other organization interests.

5. Auxiliary members who also hold membership in different woman's clubs and organizations, can render the very best of service by taking a real and active interest in all activities of such various woman's clubs and organizations which trench on the domain of public health. In short, members of Woman's Auxiliaries should occupy positions of leadership in all public health activities of such extra-auxiliary woman's organizations. Few types of service can be made to be of more value than this.

6. The public health program or studies to be carried on by each auxiliary should reflect matters existing in local environments. There are a host of such problems, all of which can be studied and reported upon by a Public Health Committee and its special sub-groups or sub-committees. Among such might be mentioned: water supplies; food supplies; housing conditions; school health problems (construction of school buildings, care of undernourished children, supervision of wayward or deficient school children); tuberculosis problems; acute epidemic problems (such as infantile paralysis); city and county health departments; county hospital problems; miscellaneous clinic and health center problems; and so on.

Such a public health committee could consist of say five to ten members, each of whom in turn was chairman of one or more special sub-committees of three or five other members of the auxiliary, to investigate one or more of such problems as are above enumerated.

7. Philanthropic activities, special study courses and similar activities are other matters worthy of consideration, but in these as in all things of growth, no set method of procedure can be laid down for all alike. The task before each auxiliary is to discern what are its local problems and then to make an effort at proper solution and betterment.

8. And finally, as regards so-called civic politics, whether of city, county or state nature, the less direct activity in such, probably the better in the long run. Here again the best course to follow can be made more easy and clear, by utiliz-

ing the services of the medical advisory committee or its designated representatives. In all this, the major thought should be of principles and service, rather than of spectacular publicity or personalities.

* * *

Woman's Auxiliaries Can Render Big Service. In conclusion, it is well to keep in mind that a woman's auxiliary is not intended to revolutionize all future activities having to do with medical or public health problems. The auxiliaries are primarily intended to provide a means of fellowship and coöperative endeavor for the women members of physicians' families. In union there is strength. Busy physicians can give but little time from their regular work for these accessory public health and medical problems. A woman's auxiliary can bring to the aid of organized medicine a valuable group of intelligent women, who, through their auxiliary organization, will be in position to render splendid service to its respective community in public health, general welfare and medical problems. That being the case, it would seem that woman's auxiliaries can and will more than justify their right to existence. And as for California, the editor believes, as time goes on, that such will be the final judgment of the medical profession of this new supporting arm to the public health, medical and public welfare interests of California and its constituent counties.

Singing as a Recreation for Nurses.—Today there are so many professional and business inducements offered to young women that, if nursing is going to fill its ranks with women of the right type, thought and consideration must be given to their social as well as to their educational lives. The routine work of the nurses in training is so arduous that the nurses get through the day much easier if they can look forward to some engrossing diversion in the evening, some recreation which will not only interest and develop the individual nurse but which will raise the esprit de corps of the whole training school.

An example of one satisfactory solution to the problem of providing extracurricular activities for the nurses has been provided this winter by the Toronto Western Hospital. A choir of fifty voices, selected from the training school and under the direction of Mr. Campion Smith, the assistant director of the Mendelssohn Choir, gave its first public recital early in April. This concert was an unqualified success and proved again that music is "the speech of angels."

The director of the work is convinced that one of the many advantages which should result from the formation of this choir, and possibly the greatest, will be the opportunity afforded to develop voice culture. He is of the opinion that this subject has been sadly neglected in many training schools and that we are all prone to forget, both nurses and doctors, that a soft, carefully modulated musical voice may do almost as much to soothe the irritable and nervous patient as many of our therapeutic measures. We are inclined to agree with Mr. Smith.

Like dramatics, singing and other forms of music create a decidedly cultural atmosphere in the training school, a desideratum sometimes difficult of attainment in the hurry-scurry routine of practical life. Group-singing, as an extracurricular activity, might well be taken up by training schools all over the country, and we look forward to the near future when nurses' choirs will be a feature of hospital and nursing conventions, as was the singing of the Danish nurses at the International Convention of Nurses held a few years ago at Helsingfors.—*The Canadian Medical Association Journal*, August 1930.

MEDICINE TODAY

This department of California and Western Medicine presents editorial comment by contributing members on items of medical progress, science and practice, and on topics from recent medical books or journals. An invitation is extended to all members of the California Medical Association to submit brief editorial discussions suitable for publication in this department. No presentation should be over five hundred words in length.

Dermatology

Toxic Reactions Produced by the Application of Trinitrophenol (Picric Acid).—One of the widely used applications in burns and various infectious skin conditions is picric acid in solutions or ointments. It is often used in industrial surgery and for sterilizing the skin preliminary to surgical procedures. Recently it was reinforced by butyn for anesthetic purposes and introduced as butesin picrate. Considering that picric acid is a derivative of phenol, the possibility of toxic effect is not surprising. The combination with butyn renders the untoward effect more likely. The writer, having an aversion and prejudice against phenol and its derivatives, never uses it nor picric acid. From time to time dermatologists see cases of local dermatitis from picric acid, but no systematic study of this subject has been reported so far.

We note, therefore, with great interest, the publication of a clinical and experimental study, by Dennie and McBride of Kansas City on the potential toxic effects of picric acid applications.

The authors have made a series of skin sensitization tests to picric acid on one hundred students. On one arm an area of two centimeters square was painted with five per cent alcoholic solution of trinitrophenol; on the other arm, a similar area was painted with five per cent aqueous solution of tannic acid. There were no reactions to the tannic acid, but four per cent of the patients showed positive reactions to the trinitrophenol, two reactions being severe and extending far beyond the area of application.

They concluded that dermatitis occurring at a distance from the area from application was produced by a protein picric acid which was carried by the blood stream or lymphatics to these areas where it was split up into its component parts, and the trinitrophenol radical or some of its modifications reunited with epithelial cells.

The animal experiments undertaken to check up this hypothesis yielded a confirmatory evidence. Experimental subcutaneous injections in dogs have shown also that the lethal dose of trinitrophenol is between 0.1 and 0.125 gram per kilogram of body weight, and that the subcutaneous fat, even at points removed from the area of injection, is stained yellow. The lungs are often stained yellow. The dog's skin does not have nearly the same ratio of absorption as the skin of a human being, since it has no sweat glands. Fifty cubic centimeters of a five per cent alco-

holic solution of trinitrophenol was applied to the intact skin of the dog. The blood showed a positive reaction for trinitrophenol after twenty-four hours. Tests for trinitrophenol in blood of human beings who have received applications of trinitrophenol would be positive. They consider the application of a solution of trinitrophenol to burned or abraded skin dangerous even for nonsensitive persons, since many deaths have been reported from its application.

In conclusion, Dennie and McBride advised against the use of trinitrophenol to sterilize the field of operation and recommend the substitution of tannic acid in proprietary ointment cases.

M. SCHOLTZ, Los Angeles.

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Orthopedics

Prevention of Contractures in Poliomyelitis. The prophylaxis of contractures. This is the predominant physiological task in the treatment of infantile paralysis. Contractures are so frequent a complication that they are considered as a *sine qua non* in poliomyelitis. They are preventable and must not be allowed to occur. Contractures develop in virtue of two factors: weight bearing, and physiological tonus and contractions of the healthy muscle opponents. Both factors effect an overstretching of the paralyzed muscles and exert a detrimental influence upon them.

The formation of contractures where weight plays its part is demonstrated by the equinus deformity whenever the tibialis muscles are paralyzed and the foot allowed to hang down by its own weight or by the weight of the bed clothing while the patient is recumbent. The calf muscles shorten and develop a permanent contracture.

Flexion deformities due to paralysis of the extensors and to contractures of the flexor group of muscles is the rule in the lower extremities. Flexion contractures of the hip, the knee, and the foot, plantarily, are the common malformations. In the upper extremities the predominant crippling disability is adduction contractures of the arm and, less frequent, the drop wrist. All this crippling can and must be forestalled by the proper splinting as a preventive measure in the early period of the disease. Postures to be adhered to are: The hip in alignment with the body on a Bradford frame; the knee in extension on a plaster trough or any type of posterior splint; the foot at right angle, with the leg on an appro-

priate device; the hand extended or dorsally flexed on a cock-up support and the shoulder on an aeroplane or abduction splint.

Not only muscles of the extremities may be affected, but those of the trunk may also be paralyzed. In such cases it is essential to keep the patient on a Bradford frame or a plaster of Paris bed until such time as he is able voluntarily to sit erect. The formation of scoliosis in these patients is so obvious and the restoration of this type of spinal deformity so difficult and time-consuming that the rule to have the patient in the recumbent position must be adhered to strictly for a considerable length of time. Better to err by extending the number of months of recumbency and of physiological posture of the joints than to regret the formation of deformities by soft tissue contractures.

A. GOTTLIEB, Los Angeles.

Psychiatry

Importance of Mental Facts in Medicine.—General hospital histories always emphasize physical facts, but obvious mental facts are rarely mentioned. Indeed I have never seen mental facts stated in an understandable or complete manner in these histories. My plea is that both mental and physical facts are important, and that neither alone completely presents the case for study.

In a recent study of three hundred general hospital histories the author states the following conclusions:

1. Among the unmistakably psychoneurotic cases only 8 per cent had been so diagnosed in spite of an average disease duration of five years.

2. Only one of the three hundred histories showed a full psychiatric presentation.

3. Among the initial complaints recorded, only 2 per cent suggested the real mental motivating facts while the psychiatrist found such mental motivating facts in 90 per cent of the complaints as stated by the patients. Usually the doctor had recorded what he thought the patient ought to say. The patient's description of the beginning, course, and present status of the complaints is easily obtainable and most important. The doctor should also record a statement as to the personality type, and credibility of the patient, as a background for the disease picture. While this is unusual it is not difficult or impossible.

Personality begins with the hereditary facts and grows in a family situation called the environment. From the hereditary point of view our chief interest is in the possible neuropsychiatric defects such as psychoses, neuroses, alcoholism, epilepsy, instability, nervous explosions, etc. Individual potentialities are usually evident in previous family records, but we are most interested in unfavorable possibilities. Confidence is never established on the first inquiry, and many important facts come later. The family situation will indicate social opportunities, educational facilities, and whether the family group is complete or broken.

In recording the life growth history one must indicate the continuity of growth with reference to the average expectations of the different age levels. In this manner we shall not find contradictions, but a connected consequential line of growth which Adler calls the "life line." Skill in interpretation comes with experience and is never based on single behavioristic facts such as a facial expression, a timid response, or an irritated manner. One should describe what he really sees without prejudice, and let the personality facts themselves form the picture.

The first or infant stage shows the pure ego reactions irrespective of any feelings of environmental associations. Thus one sees more clearly the sensitive, the egoistic, the fearful, the expanding, the explosive, the withdrawing types in their relations to food, to attendants, to sudden noises, or to fear of falling. On the other hand the times of beginning of purposeful movements, speech, walking, control of bladder and bowel indicate normal or delayed mental growths.

At three years one finds the smaller family group reactions and at six the larger school reactions. Meanwhile sex interests remain purely family and biological under normal circumstances. At twelve to fourteen years one finds personal sex interest which should normally tend toward its heterosexual aim. These are the normal growth features which make or mar subsequent personal attitudes. Pathological things such as diseases, accidents, operations, the general habits, and places of residence—these are of interest in their effects upon personality as well as their possible physical handicapping.

Adolescence reaches a climax in the solution of the two final problems of occupation and mating. It is then that the two main defects of growth, viz., feeble-mindedness and psychopathic personalities, become most important and evident. No history is complete without some indication of how these two main issues are met.

Finally the history must recognize and describe a psychoneurosis as such and not bury it under physical medical facts. A psychoneurosis is a definite clinical entity. Medicine cannot afford to ignore a psychoneurosis or hide it behind physical facts, or stifle complaints by means of sedatives. But when the above essential facts are recorded the average doctor will not blunder or refuse to seek special help when such is indicated.

ROBERT L. RICHARDS, San Francisco.

A Cancer Class for Doctors.—Plans to assemble one thousand physicians in the largest postgraduate cancer class ever held were announced today at Johns Hopkins University. The course is designed to meet new conditions in cancer prevention caused by a marked increase in the number of persons seeking medical advice. It is announced by Dr. Joseph Colt Bloodgood for September 15, 16, and 17. Invitations are to be sent to several thousand physicians, surgeons, and radiologists and are issued by the Garvan Experimental Laboratory and the Copley Surgical Pathological Laboratory of Johns Hopkins. Coöperation is announced of the American College of Surgeons and of the Chemical Foundation.—*The New York Sun*, July 31, 1930.

STATE MEDICAL ASSOCIATIONS

CALIFORNIA MEDICAL ASSOCIATION*

LYELL C. KINNEY President
JUNIOUS B. HARRIS President-Elect
EMMA W. POPE Secretary

OFFICIAL NOTICES

Next Council Meeting.—The next meeting of the Council of the California Medical Association will be held on Saturday, September 27, at 10 a. m. in the Indian Room at the Ambassador Hotel, Los Angeles.

* * *

Clinical Prizes—Rules for the Submission of Papers.—1. Any member of the California Medical Association is eligible to compete for the prizes. Any question arising as to the eligibility of a candidate or the admissibility of his essay will be settled by the decision of the Council.

2. Manuscripts must be typewritten on one side of the paper; they must be double spaced; and they must not be folded or rolled. Illustrations or charts must be marked with the title of the paper to which they belong.

3. Essays must not contain more than four thousand words. In judging a paper the committee will take into account the basic importance of the work done and its novelty; the thoroughness with which the research has been carried out; the clearness with which it has been written up; and the neatness of the manuscripts and illustrations.

4. Papers should be sent, preferably by registered mail, to Dr. Emma Pope, secretary of the California Medical Association, 1016 Balboa Building, San Francisco. They should be identified by a nom de plume or motto only. A separate envelope should be sent to Doctor Pope containing the author's name and his nom de plume or motto, so that after the award is made the name of the writer can be found. Any return addresses or distinguishing marks will be removed from the wrappers before the papers are turned over to the judges.

5. All papers must be in the hands of Doctor Pope **before February 15**, in order that the judges may finish their work in time for the meeting of the Association. Those entered for presentation at annual meeting also, must be sent in by **December 20**.

6. All papers entered in the Clinical or Research Prize Contest are eligible to be read at the annual meeting of the California Medical Association, provided the paper is received by the state secretary **before December 20** of the year preceding the annual meeting and approved by the Program Committee.

7. The judges reserve the right to withhold the award, in the event that no paper comes up to the standards of excellence they feel should be set.

8. If, in the judgment of the editors of CALIFORNIA AND WESTERN MEDICINE, and the editorial councilors, the paper on laboratory research is too technical or otherwise unsuitable for inclusion in CALIFORNIA AND WESTERN MEDICINE, the prize winner will be allowed to publish it in some special journal and will be required to make an abstract for the readers in California.

9. Inquiries relative to the prize contest should be addressed to the chairman of the committee, George

* For a complete list of general officers, of standing committees, of section officers, and of executive officers of the component county societies, see index reference on the front cover, under Miscellany.

Dock, M. D., 94 North Madison Avenue, Pasadena, California.

* * *

Rules Governing Papers Entered for Prize Competition and Also for Place on Annual Programs.—Send two copies of your paper to the state secretary, 450 Sutter Street, San Francisco, **before December 20**, with an unsigned note that you wish your essay submitted for a prize, and also read at the annual session. Sign your paper with your nom de plume. Also send your name in a sealed envelope with the nom de plume appearing on the outside. Use no stationery that in any way reveals your identity.

The state secretary shall deposit all nom de plume envelopes in a safe until the Prize Committee has made its decision.

The state secretary on receiving a prize paper which is submitted for presentation at the annual session shall submit said paper to the members of the Program Committee. The Program Committee will approve or disapprove it for place on the annual program. The Program Committee will inform the state secretary of its decision, and the secretary will then forward the titles of approved papers to the appropriate section secretary with a simple statement that the paper is acceptable for a place on the program. The Prize Committee will not be informed of this decision and action. A paper may be acceptable for a prize and not for a program, and vice versa.

The Prize Committee shall receive all papers which have been sent to the state secretary, whether approved for publication or not, on or before February 15. The sealed written report of the Prize Committee shall be submitted to the state office before March 1.

The Executive Committee, at the first meeting after March 1 of a given year, shall open the nom de plume envelopes and furnish the secretary the proper names of the authors for the published annual program.

The Council shall consider the report of the Prize Committee at its first meeting of the annual session, and shall announce the result at the first general meeting of the Association.

* * *

Extension Lecture Service.—With the termination of the vacation season, county medical societies renew their usual meetings and also their calls upon the state office for speakers at their monthly gatherings. So it comes about that the yearly extension lecturers are asked to revise their programs and to be prepared to furnish talks other than those previously listed.

An invitation is also yearly extended through these columns for volunteers in this work. The service is voluntary; there is no state fund to cover the expenses of travel; it often takes a member away from his work at an inopportune time, and yet those who give of their time and service make new contacts that are worth while, learn to address audiences easily, and are forced to rapid thinking and response in the discussion that regularly follows papers. Few members who have been placed upon the extension list have asked to have their names removed. Many have spoken with pleasure of their evenings with county societies.

This is fine organizational work. An active county society is the basis of a healthy state association. Whatever, therefore, calls out the members to a county meeting is an aid to the growth of the California Medical Association.

Will those members who are interested in this work and who have talks that are worth while to the

general practitioner, and who are willing to be called upon occasionally to deliver these addresses to county societies, furnish their names and the subjects of their talks to the state office before the 20th of September?

COMPONENT COUNTY SOCIETIES

SANTA BARBARA COUNTY

The regular meeting of the Santa Barbara County Medical Society was held at the Bissell Auditorium of the Santa Barbara Cottage Hospital on Monday evening, August 11, with Doctor Freidell, president, in the chair.

The minutes of the previous meeting were read and approved.

Doctor Elliot gave a paper on "The Mechanism in the Production of Nephritis." This was discussed by Doctor Nuzum.

Dr. Ira Hiscock, associate professor of public health at Yale University, then gave a brief résumé of the survey of the Social Service Conference. This was briefly discussed by Doctors Nuzum and Henderson.

Dr. W. H. Eaton gave a report of "Local Labor Union Contract for Medical Care," which was discussed by Doctors Spaulding, Henderson, and Nagelmann.

The society then went into executive session. The transfer card of Dr. Fred T. Foard was read and it was moved by Doctor Ryan, and seconded by Doctor Means, that Doctor Foard be admitted into membership.

* * *

IN MEMORIAM

The following resolution regarding the death of Doctor Soper was read, and it was moved, seconded and carried, that the resolution be adopted and spread upon the minutes of this meeting, and a copy sent to Mrs. Soper:

Whereas, Dr. Alexander C. Soper, Jr., was for many years a respected member of the Santa Barbara County Medical Society, serving for a number of years as its secretary; be it

Resolved, That in his untimely death the members of the society have lost a valued associate and a dear friend; and be it further

Resolved, That this resolution be spread upon the minutes of the society, and a copy sent to Mrs. Soper.

* * *

Doctor Freidell then read a communication from the morning press in which they desired to publish a series of syndicated articles concerning the medical profession. After a brief discussion it was moved, second and carried, that the secretary be instructed to ascertain from the secretary of the California Medical Association whether this procedure would be ethical.

WILLIAM H. EATON,
Secretary.

CHANGES IN MEMBERSHIP

New Members

Glenn County.—Ermanella C. Coffey, Stanley E. Coffey.

Los Angeles County.—Charles Seward Ambrose, Paul Revere Burroughs, E. L. Wemple.

Sacramento County.—Maurice A. Hopkins, Elmo Alexander.

Transferred

Glenn T. Logsdon, from San Diego to Los Angeles County.

Deaths

Finney, Clara Eugenia. Died at Modesto, August 17, 1930, age 47 years. Graduate of Stanford University School of Medicine, San Francisco, 1920. Licensed in California, 1920. Doctor Finney was a member of the Stanislaus County Medical Society, the California Medical Association, and a Fellow of the American Medical Association.

Herbert, Gavin Shearer. Died at Hollywood, August 11, 1930. Graduate of University of Illinois College of Medicine and Surgery, 1909. Licensed in California, 1914. Doctor Herbert was a member of the Los Angeles County Medical Association, the California Medical Association, and a Fellow of the American Medical Association.

Jump, Robert L. Died at Oakland, June 16, 1930, age 66 years. Graduate of Cooper Medical College, San Francisco, 1890. Licensed in California, 1890. Doctor Jump was a member of the Alameda County Medical Society, the California Medical Association, and a Fellow of the American Medical Association.

Kearney, Percy Francis. Died at San Francisco, August 11, 1930, age 52 years. Graduate of University of Minnesota Medical School, Minneapolis, 1904. Licensed in California, 1923. Doctor Kearney was a member of the Alameda County Medical Society, the California Medical Association, and a Fellow of the American Medical Association.

Lowell, Charles Herbert. Died at Carmel, July 30, age 55 years. Graduate of Cooper Medical College, San Francisco, 1896. Licensed in California, 1896. Doctor Lowell was a member of the Monterey County Medical Society, the California Medical Association, and a Fellow of the American Medical Association.

Thompson, Charles Elliott. Died July 28, 1930, age 60 years. Graduate of Cooper Medical College, San Francisco, 1894. Licensed in California, 1894. Doctor Thompson was a member of the Los Angeles County Medical Association, the California Medical Association, and the American Medical Association.

UTAH STATE MEDICAL ASSOCIATION

H. P. KIRTLEY, Salt Lake City.....President
WILLIAM L. RICH, Salt Lake City.....President-Elect
M. M. CRITCHLOW, Salt Lake City.....Secretary
J. U. GIESY, 701 Medical Arts Building,
Salt Lake City.....Associate Editor for Utah

OFFICIAL NOTICE

The Utah State Association and its Committee on Program has every reason to be congratulated on the list of guests who will attend the state meeting in September.

The list is imposing enough to inspire anticipations of the highest and assure a program of unusual interest.

Dean Lewis of Johns Hopkins, Baltimore, will be with us. William Gerry Morgan will lend us the pleasure of his presence. Leo Eloesser and Aaron Green of San Francisco will both speak. A. C. Ivy of Chicago North Western is on the program. A. Warthlin of Ann Arbor will also participate, and Anita M. Muhl of San Diego will represent the extreme southwest.

With such a promise the state meeting cannot fail to be well worth the time of each and every state member. One can only hope that the attendance will justify the efforts made by the committees in gaining the support and coöperation of such speakers as these.

Programs are being mailed out the second week in August, and the Committee on Publicity will see that the meeting is well advertised.

This year there will be no postgraduate classes, the entire scientific program being carried as a part of the state meeting itself.

Full accounts of the meeting will be printed in the October issue.

MISCELLANY

Items for the News column must be furnished by the twentieth of the preceding month. Under this department are grouped: News; Medical Economics; Correspondence; Department of Public Health; California Board of Medical Examiners; and Twenty-Five Years Ago. For Book Reviews, see index on the front cover, under Miscellany.

NEWS

Pacific Association of Railway Surgeons.—The Pacific Association of Railway Surgeons held its twenty-eighth annual meeting at the Hotel Coronado, San Diego, on August 22-23. Scientific programs were given on Friday and also Saturday morning. On Saturday evening the visiting members adjourned for other diversions to Agua Caliente, in old Mexico. On Friday there was a symposium on emergency treatment of various injuries, and a paper on fractures of the leg. On Saturday morning, following the presidential address and business meeting, there was a paper on "Compression Fractures of the Vertebrae" by Doctors Dunlap and Parker of Pasadena, and a progress report on cancer research work by Doctors Coffey and Humber of San Francisco. Most of the members of the association traveled south to San Diego in special cars from San Francisco, stopping off on Thursday at Los Angeles, where the visiting members were entertained by the Los Angeles members of the association with a barbecue dinner and other entertainment at the Uplifters' Ranch in Santa Monica Canyon.

New Homeopathic Hospital.—The regents of the University of California have reconveyed to the Hahnemann Hospital Corporation the building situated upon the corner of California and Maple streets, San Francisco, and plans are now being considered for the razing of the old building and construction of a new homeopathic hospital.

The homeopathic profession is being congratulated upon the prospects of soon having a hospital of its own.—*Pacific Coast Journal of Homeopathy*, August 1930.

Walter C. Alvarez Lecture.—At the thirty-second Annual Session of The American Gastro-Enterological Association, held at Atlantic City, New Jersey, May 6-7, 1929, Dr. Frank Smithies donated a fund with the object of the association's securing annually a guest speaker of national prominence in research work.

The proceeds of the fund assure an honorarium to the invited guest of \$100. This annual address is to be known as "The Walter C. Alvarez Lecture."—*Official Bulletin of the Chicago Medical Society*.

Symposium on Benign and Malignant Lesions of Bone.—On September 15, 16 and 17, 1930, beginning Monday morning at 10 o'clock and ending on Wednesday evening at 9 o'clock, in the ballroom of the Belvedere Hotel, Baltimore, Maryland, will be held a meeting for the study of benign and malignant lesions of bone. Dr. Joseph C. Bloodgood extends an invitation to all radiologists interested in the diagnosis and treatment of bone tumors.

On account of the size of the ballroom the number must be limited to eight hundred. Those who wish to attend should write the manager of the Belvedere Hotel.

For further details address Miss Maude Walker, secretary to Doctor Bloodgood, Surgical Pathological Laboratory, Johns Hopkins Hospital, Baltimore, Maryland.

The Grace Deere Velie Metabolic Clinic was made possible through the beneficence of Grace Deere

Velie, who left an endowment in the neighborhood of \$800,000. Slightly over \$300,000 has been expended for the buildings and equipment. The purpose of the clinic, as set forth in the articles of incorporation, is primarily to conduct investigative work in metabolism, and for the intensive study and treatment of patients suffering from metabolic diseases.

The clinic will have facilities for taking care of twenty-five patients, with complete laboratory equipment for diagnosis and research. There are five research laboratories and an animal house with laboratory and operating room in connection.

The clinic will not be conducted for profit, though it is expected that the income from care of patients will pay part of the operating expenses, leaving the major part of the residual endowment available for research.

The initial staff will consist of:

R. A. Kocher, A. B. Stanford; M. D., Johns Hopkins; postgraduate study, Munich, 1912-1914. Published numerous researches in metabolism.

Paul B. Hartley, A. B., M. D., Northwestern Medical School, Chicago, 1925. Resident St. Luke's Hospital, Chicago. Postgraduate work in metabolism, Northwestern Medical School, Chicago.

Elmer Messner, A. M. Stanford; Cand. Ph. D., University Breslau, 1928-1930, research chemist.

Doctors Rodenbaugh and Ingber, roentgenologists.

Additions to the staff are expected to be made in the future.

The clinic at Carmel will be open to the public August 10, 1930.

Western Branch of the American Urological Association.—The next annual meeting of the western branch of the American Urological Association will be held in Los Angeles, September 18 to 20, 1930.

Officers of National Board of Medical Examiners.—At the recent annual meeting of the national board, the following officers were elected: Waller S. Leathers, president; Everett S. Elwood, executive secretary; J. S. Rodman, medical secretary.

In addition to the officers, eight new members were elected for terms of six years each. Three of these are representatives of the Federation of State Boards of Medical Examiners in the United States. They are as follows: T. J. Crowe, secretary, Board of Medical Examiners for the State of Texas; J. Gurney Taylor, member of the Wisconsin State Board of Medical Examiners; and J. H. J. Upham, dean of the Ohio State University College of Medicine and member of the Ohio State Medical Board.

The remaining five members were elected at large. They are as follows: Charles A. Elliott, professor of medicine, Northwestern University Medical School; William DeB. MacNider, professor of pharmacology, University of North Carolina School of Medicine; Walter W. Palmer, professor of medicine, Columbia University College of Physicians and Surgeons; E. D. Plass, professor of obstetrics and gynecology, the State University of Iowa College of Medicine; and Charles R. Stockard, professor of anatomy, Cornell University Medical College.

The reports of the officers of the board showed an increase of approximately 10 per cent in the number

of candidates taking the examinations during the past year as compared with the year previous.

The number of state boards now recognizing the national board's certificate total forty, besides the territories of Hawaii and Porto Rico and the Canal Zone. Partial recognition is also granted the national board's examinations by England, Scotland, Ireland, and Spain.

Examinations in Part I and II were scheduled and given in forty-one centers throughout the country; there being a total of 707 candidates registered for Part I and 337 for Part II. Examinations in Part III, the clinical and practical examination, were held in sixteen centers in June and July, with approximately 280 registered candidates.

Annual Award for Study of Goiter.—At the recent meeting of the American Association for the Study of Goiter at Seattle, Washington, Dr. William F. Rienhoff, Jr., of Johns Hopkins University, Baltimore, Maryland, received the annual award of \$300 for the best essay dealing with the goiter problem. Doctors O. P. Kimball of Cleveland, Ohio; E. P. and D. R. McCullagh, Cleveland Clinic Foundation, Cleveland, Ohio, and Robert P. Ball of University of Louisville received honorable mention.

John Phillips Memorial Prize.—The American College of Physicians has announced the John Phillips Memorial Prize of \$1500 to be awarded for the most meritorious contribution in internal medicine and in sciences contributing thereto. The thesis must be based on published or unpublished original work and mailed to the executive secretary of the college on or before August 31, 1930; it must be in English, in triplicate, typewritten or printed, and the work on which it is based must have been done in whole or in part in the United States or Canada. The recipient of the prize would be expected to read the essay at the next annual meeting of the college. Announcement of the prize will be made not later than two months before the annual meeting; the college reserves the right to make no award of the prize if a sufficiently meritorious piece of work has not been received. It is a memorial to Dr. John Phillips, who lost his life in the Cleveland Clinic disaster last year. The executive secretary of the college is E. R. Loveland, 133-135 South Thirty-sixth Street, Philadelphia.—*Journal of the Association of American Medical Colleges*, July 1930.

Department for Medical History at Johns Hopkins University.—Joseph S. Ames, LL. D., president, recently announced a gift from the General Education Board, totaling \$312,500, for the establishment of a department of the history of medicine. The sum is in addition to \$750,000 previously given to build the William H. Welch Medical Library and \$250,000 for the maintenance of the professorship in the history of medicine which is occupied by Dr. William H. Welch. The gift is given in the form of \$12,500 for each of five years and then a capital sum of \$250,000, making possible provision for other professorships in the department of the history of medicine. Since the library was first planned, it is reported, it has been the wish of the authorities at Johns Hopkins to create a full department to investigate the various branches of medical history.—*Journal of the Association of American Medical Colleges*, July 1930.

Board of Medical Examiners.—The issuance of fifty licenses to applicants during June brought the total number of licentiates operating under the jurisdiction of the Board of Medical Examiners up to 11,417. This total was reduced at the end of the month, however, by the removal of the names of twelve deceased licentiates from the roster, leaving an actual total of 11,405 licentiates at the close of the fiscal year.

Investigations conducted by agents of the board during the period dealt with here numbered fifty and there were thirty-one investigations pending comple-

tion at the close of the period. Prosecutions conducted numbered five. Three convictions were obtained. Four prosecutions were pending completion at the close of the month. Fines assessed by courts amounted to \$150. Suspension or revocations of licenses, none.

Investigations covered a wide range of complaints of alleged offenses against the Medical Practice Act, from illegal advertising, on through the scale to selling mineral water as a curative, illegal use of anatomical material, illegal writing of prescriptions, conducting a medicine show, offering fraudulent credentials and posing as an eye specialist.—*Report to the Governor, Department of Public Health*.

CORRESPONDENCE

Subject of Following Letter: Tax Exemption for Non-profit Hospitals—Constitutional Amendment No. 6

The Editors, California and Western Medicine:

Constitutional Amendment No. 6, to be voted upon November 4, 1930, is a measure of personal interest that deserves the votes of all doctors and their patients. Their moral support will mean a great deal to this cause. The House of Delegates at the Del Monte meeting approved tax exemption of non-profit hospitals. California, standing almost alone among the states of the Union in taxing hospitals organized on a nonprofit basis, is really taxing sickness and philanthropy. City and county taxation on the buildings and funds of these hospitals increases hospital costs in some institutions as much as 58 cents per day per patient.

A non-profit hospital (of which there are about 75 in California) is one which is incorporated under the laws of the State of California as non-profit, all earnings from the hospital being devoted to the conduct of the institution. No officers, trustees, or directors receive any dividends, payment or fees for their services.

A study of the facts shows a very clear case for tax exemption. In 1929, sixty-four (reporting) non-profit hospitals gave free service to the extent of \$2,634,753.95. This included free service in out-patient clinics, free and part-pay hospitalization, and educational activities. The maintenance of thirty-three nurses' training schools by these non-profit hospitals amounted to \$382,000. Hundreds of medical students intern in these hospitals. In other words, these hospitals are educating, at their own expense, trained workers who are demanded by the public, and the public in turn is taxing these institutions of learning.

Tax exemption for the non-profit hospital is economically sound. The non-profit hospital bears a public burden. Exemption from the \$325,435.60 tax bill of these 64 non-profit hospitals (we do not have exact figures for the remaining eleven) in 1929 would be the equivalent of granting these hospitals an endowment of twenty times that amount, or \$6,500,000. Bear in mind, also, that the amount of exemption sought, as taxes of 1929 (\$325,435.60) is less than one-sixteenth of one per cent of the total municipal and county tax receipts in California for one year.

Forty-five states in the Union already grant tax relief to their non-profit hospitals, and in recognition of the fact that they bear a large share of the public burden. Is it not fitting that California should join this splendid procession of states? We earnestly ask the support of the readers of this magazine for this measure. Where our cause is understood we receive coöperation, but much needs to be done in the way of informing the voters.

Vote "Yes" on Constitutional Amendment No. 6!

Very truly yours,

HOWARD H. JOHNSON.

PUBLIC POLICY AND LEGISLATION

In the state election of November 6, 1928, a referendum was sustained by the citizens of California which brought into being a readjustment of its two law-making houses, the senate and assembly, which jointly make up the California legislature. Before this issue of CALIFORNIA AND WESTERN MEDICINE reaches its readers the primary election of this state election year 1930 will have been held, and the people of California will know who are to be the candidates for offices in the executive and legislative branches of the state government.

For the convenience of those members of the California Medical Association and its component county medical societies, who through official responsibilities or natural inclinations take an interest in state elections because of their possible effect upon public health matters, the editor is printing in this column a list of the different California assembly and senatorial districts. It is possible that such a list (which is here reprinted from the "Handbook of the California Legislature, Forty-Eighth Session") may act as a handy reference and be of value to members of county society committees on public policy and legislation and to members of the California Medical Association who are coöperating in the work of such committees. For further discussion of these matters, see editorial in this issue of CALIFORNIA AND WESTERN MEDICINE.

I. SENATORIAL DISTRICTS—1930

Districts fixed by Chapter 856, Statutes of 1927, sustained under referendum on November 6, 1928.

These are the counties which make up the various senatorial districts from which state senators will hereafter be elected. The editor has italicized those senatorial districts containing more than one county:

- First—Modoc, Lassen, Plumas.*
- Second—Del Norte, Siskiyou.*
- Third—Humboldt.
- Fourth—Mendocino, Lake.*
- Fifth—Trinity, Shasta.*
- Sixth—Butte.
- Seventh—Sierra, Nevada, Placer.*
- Eighth—Tehama, Glenn, Colusa.*
- Ninth—El Dorado, Amador, Alpine.*
- Tenth—Yuba, Sutter.*
- Eleventh—Napa, Yolo.*
- Twelfth—Sonoma.
- Thirteenth—San Francisco.
- Sixteenth—Alameda.
- Seventeenth—Contra Costa.
- Eighteenth—Santa Clara.
- Nineteenth—Sacramento.
- Twentieth—San Joaquin.
- Twenty-first—San Mateo.
- Twenty-second—Stanislaus.
- Twenty-third—Santa Cruz.
- Twenty-fourth—Merced, Madera.*
- Twenty-fifth—Monterey, San Benito.*
- Twenty-sixth—Tuolumne, Mariposa, Calaveras.*
- Twenty-seventh—Kings.
- Twenty-eighth—Mono, Inyo.*
- Twenty-ninth—San Luis Obispo.
- Thirtieth—Fresno.
- Thirty-first—Santa Barbara.
- Thirty-second—Tulare.
- Thirty-third—Ventura.
- Thirty-fourth—Kern.
- Thirty-fifth—Orange.

- Thirty-sixth—San Bernardino.
- Thirty-seventh—Riverside.
- Thirty-eighth—Los Angeles.
- Thirty-ninth—Imperial.
- Fortieth—San Diego.

II. ASSEMBLY DISTRICTS

These assembly districts are fixed by the Political Code, Section 78, as amended by Chapter 856, Statutes of 1927, sustained under referendum on November 6, 1928.

These are the districts, with names of inclusive counties, from which assemblymen will hereafter be elected. The editor has indicated with numerals (in parenthesis) the number of assemblymen from these different sections of California:

- First—Del Norte, Humboldt (1).
- Second—Siskiyou, Modoc, Shasta, Trinity (1).
- Third—Lassen, Plumas, Sierra, Nevada, Placer (1).
- Fourth—Tehama, Glenn, Colusa (1).
- Fifth—Butte, Sutter, Yuba (1).
- Sixth—Mendocino, Lake (1).
- Seventh—Sonoma (1).
- Eighth—Napa, Yolo (1).
- Ninth—Marin (1).
- Tenth—Solano (1).
- Eleventh and Twelfth—Sacramento (2).
- Thirteenth—Contra Costa (1).
- Fourteenth and Fifteenth—San Joaquin (2).
- Sixteenth—El Dorado, Amador, Calaveras, Alpine, Tuolumne, Mono, Inyo (1).
- Seventeenth—Merced, Mariposa, Madera (1).
- Eighteenth—Stanislaus (1).
- Nineteenth—San Mateo (1).
- Twentieth and Twenty-first—Santa Clara (2).
- Twenty-second to Thirty-third—San Francisco (12).
- Thirty-fourth to Forty-first—Alameda (8).
- Forty-second—Santa Cruz, San Benito (1).
- Forty-third—Monterey, San Luis Obispo (1).
- Forty-fourth to Forty-sixth—Fresno (3).
- Forty-seventh—Tulare, Kings (1).
- Forty-eighth—Kern (1).
- Forty-ninth—Santa Barbara (1).
- Fiftieth—Ventura (1).
- Fifty-first to Seventy-second—Los Angeles (22).
- Seventy-third and Seventy-fourth—San Bernardino (2).
- Seventy-fifth—Orange (1).
- Seventy-sixth—Riverside (1).
- Seventy-seventh—Imperial (1).
- Seventy-eighth to Eightieth—San Diego (2).

MUCH IN LITTLE *

A carefully taken history leads to a correct diagnosis in 85 per cent of our patients.

This is healthy tissue. It is my friend. I will save it.

A gauze drain soon becomes a good cork.

Frequent dressings of superficial wounds keep your waiting room filled—until the insurance company learns your secret.

* Members of the California, Nevada, and Utah Medical Associations are invited to contribute to this column of aphorisms, which will appear from time to time in California and Western Medicine, as sufficient copy accumulates.

TWENTY-FIVE YEARS AGO *

EXCERPTS FROM OUR STATE MEDICAL JOURNAL

Vol. III, No. 9, September 1905

From some editorial notes:

Medical Journals.—On another page we take pleasure in reprinting an editorial note from a recent number of *American Medicine*, in which is put very clearly and forcefully the issue presented to all medical journals by the formation of the Council on Pharmacy and Chemistry of the American Medical Association. . . .

. . . Is it not time, gentlemen of the medical profession, that we should study a little of the Pharmacopeia and teach ourselves a little of what we should know? Or shall we continue forever to "learn" our therapeutics from the smooth-tongued detail man of the nostrum manufacturer? . . .

The X-Ray in Cancer.—Sufficient time has now elapsed for us to take a relatively broad view of the results obtained in the treatment of malignant growths to x-ray exposures. . . . Coley refers to his statements made at the time when this procedure was first suggested, and says, "I then believed, and have since maintained, that the treatment should be strictly limited to inoperable and recurrent cancer, or applied as a postoperative measure that might possibly render recurrences less likely to take place." . . .

The Course of Proprieties.—Practically all the so-called "patent medicines"—by which is really meant the nostrums advertised and sold directly to the laity—were originally "proprieties" introduced through the kindly offices of the medical profession and later given directly to the public. Most of those at present in vogue with the medical profession will undoubtedly take the same course in due time. . . .

. . . And yet scores of supposedly decent medical journals are advertising this very same stuff. . . . Is it not astonishing that the medical profession will continue to extend with one hand and accept with the other "gold bricks" like this? To bunco one's own self! It seems almost too ridiculous to be true!

State Journals.—Four more state medical organizations have started medical journals as the medium of publication of their transactions, and one, Maryland, has made an existing journal its official publication. Texas, Ohio, South Carolina, and New Mexico are the states to begin the publication of new journals, and we certainly wish them the very best of success and long and useful lives. . . .

The Lane Lectures.—The institution of annual courses of lectures to be given by men who have shown themselves to be masters in their particular branch of medicine is one to be commended, for a variety of reasons. . . . We hope that in future years, as in the past, the Lane Lectures may continue to be a source of instruction and of inspiration to the physicians of the Pacific Coast.

From an article on "Unity, Peace and Concord." Abstract of a Farewell Address to the Medical Profession of the United States, by William Osler, M. D.

On this occasion I have had no difficulty in selecting a subject on which to address you. Surely the hour is not for the head but for the heart, out of the abundance of which I may be able to express, however feebly, my gratitude for the many kindnesses I have received from the profession of this country during the past twenty-one years, and from you, my dear colleagues of this state and city, during the sixteen years I have dwelt among you. . . .

I have studied to be quiet and to do my own business, and to walk honestly toward them that are with-

* This column strives to mirror the work and aims of colleagues who bore the brunt of state society work some twenty-five years ago. It is hoped that such presentation will be of interest to both old and recent members.

out, and one of my chief pleasures has been to work among you as a friend, sharing actively in your manifold labors. . . .

Unity.—Medicine is the only world-wide profession, following everywhere the same methods, actuated by the same ambitions and pursuing the same ends. This homogeneity, its most characteristic feature, is not shared by the law and not by the church, certainly not in the same degree. . . .

Peace.—The physician, like the Christian, has three great foes—ignorance, which is sin; apathy, which is the world; and vice, which is the devil. . . .

Concord.—Unity promotes concord—community of interests, the same aims, the same objects give, if anything can, a feeling of comradeship, and the active coöperation of many men, while it favors friction, lessens the chances of misunderstanding and ill will. One of the most gratifying features of our professional life is the good feeling which prevails between the various sections of the country. . . .

From an article on "Clinical Features of Gall-Bladder and Gall-Duct Affections," by Herbert C. Moffitt, M. D., San Francisco.

The right upper quadrant of the abdomen is a territory so thoroughly explored of late, a field so recently fought over, that it cannot now be made the theater of very stirring events. We are concerned here with diagnosis of different forms of cholecystitis, cholangitis, but particularly cholelithiasis. . . .

From an article on "Report of the Work of the Board of Examiners," by Dudley Tait, San Francisco.

Since the meeting of this society at Paso Robles, a decision has been handed down by the Supreme Court sustaining the medical law regulating the practice of medicine in this state. Written in lucid and logical language by Judge Shaw of Los Angeles, and concurred in by the entire court, this document passes upon the constitutionality of almost every section of the law, thus obviating the necessity for considerable special legislation. . . .

From an article on "A Case of Poisoning From *Ceanothus Velutinus*, Resembling *Rhus* Poisoning," by R. F. Rooney, M. D., Auburn.

. . . This is a common shrub throughout the mountains of northern California and southern Oregon, and in places constitutes nearly the sole vegetation, covering acres of mountainside. . . .

. . . The violence of the symptoms and the extensive areas of the body involved, exceeded those of any case of *Rhus* poisoning coming under my notice in many years' experience with the latter affection. . . .

From Medical Society Reports:

From the Minutes of the "Third Annual Meeting of the Pacific Association of Railway Surgeons," Thursday, August 17.—The meeting was called to order at 2 p. m. at Hotel St. Francis, San Francisco, by F. T. Adams, who introduced the president, N. H. Morrison, who then delivered the annual address. . . .

From the Minutes of the "California Public Health Association," Riverside, April 17, 1905.—Meeting was called to order at 11 a. m. by the president, Dr. LeMoyne Wills of Los Angeles, who delivered an appropriate address of welcome, eloquently setting forth the great good to be done by the Association in the cause of sanitation and humanity, and predicting for it a long career of usefulness. . . .

San Francisco County.— . . . The committee on admissions reported the following elected to membership: Dr. Joseph Artigues, Dr. Ernest D. Chipman, Dr. C. E. Leithead. . . .

CALIFORNIA BOARD OF MEDICAL EXAMINERS

By CHARLES B. PINKHAM, M. D.
Secretary of the Board

News Items, September 1930

A test case of paramount importance to the entire medical profession of California and to all insurance companies operating in the state, was decided yesterday by Division 1 of the District Court of Appeal, when it annulled an award which the Industrial Accident Commission had made to J. Rollin French, M. D., his staff and the Golden State Hospital. The Appellate Court ruled that the Accident Commission had no jurisdiction to award a surgeon, his helpers and the hospital payment directly from an insurance company, but that such debts must be paid from awards which the commission makes to an injured man. . . . Doctors and insurance carriers throughout the state awaited the outcome of the present case. . . . The exact point involved . . . was whether doctors and hospitals can collect from an insurance company after the company has given notice that it no longer desires them to service the employees of an employer for whom it is the carrier. In this instance the Pacific Employers' Insurance Company gave written notice of the termination of the medical care agreement, but the hospital and surgeon continued to treat cases, on the assumption pay could be collected from the insurer. . . . The appellate decision has nullified such procedure (Los Angeles *News*, July 1, 1930).

One hundred and sixty-three applicants for written examination reported at the regular meeting of the board held in San Francisco, July 7 to 10, and seventy-three applicants for written examination reported at the special examination held in Los Angeles the week following.

On the legal calendar at the San Francisco meeting appeared the names of twenty-four licentiates called before the board for various derelictions. After hearings by the board the following action was taken:

Rose Boido, M. D., charged with alleged illegal operation, failed to appear. Default was entered and on July 8, 1930, Doctor Boido's license to practice as a physician and surgeon in the State of California was revoked.

Francis J. Bold, M. D., Whittier, charged with an illegal operation on Mrs. Carmelita Wilhite, deceased, and in a second complaint charged with a similar operation on Mrs. de la Cuesta, was found guilty by the board and on July 10, 1930, his license to practice in California was revoked. A writ of certiorari has been filed for review of the testimony by the Superior Court in Los Angeles.

Oscar de Vaughn, M. D., of Oakland, charged with an alleged illegal operation, was found guilty and on July 8, 1930, his license to practice in California was revoked. A writ of certiorari to review the findings of the board before the Superior Court has been filed.

Elmer F. Kinne, M. D., charged with a narcotic violation, was on July 9, 1930, found guilty and placed on five years' probation without possession of narcotics or a permit to prescribe narcotics.

William McNaul, M. D., charged with a narcotic violation, was on July 9, 1930, found guilty and placed on probation for five years without narcotic permit or possession.

Elena Rinetti, Los Angeles midwife, charged with an illegal operation, made no appearance. Default was entered and after the board's case was submitted, on July 9, 1930, her midwife license was revoked.

The report of the legal department on appeals pending in the courts of this state following revocation showed the status as follows:

Pearl Anderson vs. Board (revoked July 11, 1928). On July 6, 1930, board sustained by Superior Judge Goodell of San Francisco.

Frank M. Moran vs. Board (revoked March 1, 1928). Revocation sustained. No appeal.

Eugene Rinaldo vs. Board (revoked July 9, 1924). Restored by court July 3, 1928. Board's appeal pending in Appellate Court.

Petitions of Thomas Greig, Ernest R. Hoffman, Lewis T. A. Hotten, and Franklin Kerr for restoration of revoked certificates were denied.

According to a circular from the sheriff's office dated San Diego, August 7, 1930, A. B. Gersabeck, alias Dr. Alfred Bach, is wanted for escape from the county hospital, to which he had been transferred from jail where he was under sentence of a fine of \$600 and 180 days following his conviction on June 5, 1930, of violation of the Medical Practice Act. This individual's specialty seems to be obtaining money from nurses under promise of lucrative employment in a prospective sanitarium. (Previous entries August and September 1926; July 1927; September 1928.)

Reports of swindles by eyesight fakers continue and at present there are felony and misdemeanor warrants outstanding in Fresno, Los Angeles, Orange, Riverside, and San Diego counties. The board is in possession of affidavits identifying the individuals as shown in the pamphlet on eyesight swindlers edited by the secretary of the Board of Medical Examiners.

Complaint was recently filed in the Municipal Court of Los Angeles, charging Frank Faircloth and John F. Gebhardt, alleged eyesight swindlers, with violation of the Medical Practice Act and bail fixed in each case at \$500.

Division 1 of the District Court of Appeal today granted a new trial to Dr. George E. Darrow, convicted in the Superior Court on a second degree murder charge of having performed an illegal operation with fatal results to the patient. Court error in ruling on objections by the defense to the admission of certain testimony was responsible for the reversal. The woman died in Doctor Darrow's office, but the physician testified that he merely was examining the patient at the time (Los Angeles *Record*, July 31, 1930). (Previous entries, September, October, November, December, 1929; January and March, 1930.)

Charles Lew, Chinese herbalist, on July 29, 1930, pleaded guilty in the Justice Court at Redlands on a charge of violation of the Medical Practice Act and paid a fine of \$100.

On July 30 Mr. and Mrs. Ben Stone of High Grove, Riverside County, who had been swindled out of \$812.50 by eyesight swindlers, filed a complaint charging Roy L. Martin and Elliott Wilkinson, asserted eyesight swindlers, with violation of the Medical Practice Act.

According to report by Special Agent Carter, D. J. Bussell was found guilty of violation of the Medical Practice Act and on July 31 was sentenced to pay a fine of \$100 or serve twenty days in the city jail, following which he was placed on probation on condition that he should not have any medical instruments or Chiropractic instruments in his possession. Mr. Carter expressed interest in knowing what "Chiropractic instruments" are.

According to reports of our investigation department, Mary Poe, Paso Robles "Chirothesian," on July 11 pleaded guilty to a violation of the Medical Practice Act and was sentenced to serve ninety days in the county jail, suspended on condition that she surrender her Chirothesian certificate. It is reported that following her arrest some four years ago by representatives of the Chiropractic Board, she purchased for \$300 a Chirothesian diploma under the impression that it gave her authority to treat the sick and afflicted in this state.

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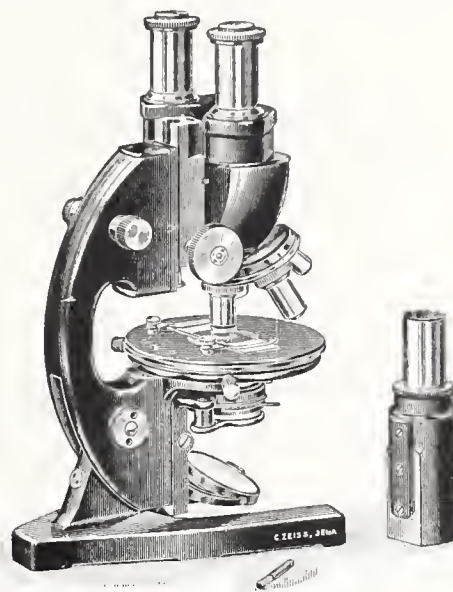
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(Continued from Page 31)

of the water they are forming a negative opinion of our value.

This is because it has become a fad for large groups of American physicians to descend, en masse, on well-known foreign clinics. These groups are composed not of well-trained men in the various surgical specialties, but of very mediocre general practitioners off on a holiday and sight-seeing.

We say "very mediocre practitioners" with intent. Often they are men not even outstanding in their home communities. They have done no studying since graduation from medical school, they read almost nothing, neither do they do any research, add to the literature, visit home clinics or take post-graduate courses. They enjoy large practices or have made a fortune in real estate or the market. They yearn for travel, visits to foreign places, the sights offered by the show places of the world.

Enterprising members of the profession of the getter type organize clubs, groups, societies, much on the style offered by any well-known travel agency, to visit foreign countries and see "all the clinics." Thirty to a hundred medical babbitts, who have no idea of what it is all about and care less, "sign up" and in a gay mood depart for distant shores.

Early in the game they were well received. They were entertained and lionized. And then, in many instances, the workers in the foreign clinics woke up to actual facts. They discovered their honored guests were in a mental fog concerning the work at hand, that they did not know the fundamentals involved, and cared not a hoot about the coarse or fine points under discussion. They were there for a good time. The visit to a medical center was just a line in the itinerary. Herdlike they would descend on a place and overrun it, strain their necks to see all, and were mainly interested in taking moving pictures of everything: the operators, the nurses in the "queer" looking uniforms, Bill from the home town, Jack sitting down

in the front row, the anesthetist, the fellow in front, the gang in the back, the outside of the building, the corridors—wait until we get home and spring these on the boys!—or else write in little books voluminous notes of their adventures with which to regale the folks on their return.

We know of a hospital resident sent abroad a year to study. He relates that one day the "professor" of a well-known and popular foreign clinic was informed that a medical travel club, for the third or fifth consecutive season, would honor the place on the morrow. Sending for the American resident the professor said: "Take these visiting gentlemen to the Lake and see that they have a jolly time. I'm too busy to be bothered with them." The Lake referred to is a place built along the lines of our own Coney Island.

We would not infer that all visiting groups of physicians and surgeons are the cause of this abuse. Far from it. Headed by nationally and internationally known surgeons such groups are composed, for the most part, of men who "know their stuff" and are eager to add to the sum of their knowledge. The foreign head of the clinic is acquainted with most of these men, and the students they send to him for study, and are glad to welcome them and be their host. This type of travel club is doing no end of good in fostering cordial scientific relations between our country and the countries abroad.

These babbitts we have in mind do not come from only the small places; the large cities send more than their quota. They are herded into groups by the small-time imitator of the nationally known men, and feel there is glory in quantity. Let these groups devote their time to the Eiffel Tower, the Tower of London, the night clubs of Paris, and the world's famous restaurants. In this way they will give the real surgical workers a chance. Let us take a hint from well-founded reports that come to us from abroad and put an end to this abuse. T. S. W.—*The American Journal of Surgery*, January 1930.

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The Importance of Correct Records.—An immense amount of unnecessary work comes to state and local registrars of vital statistics through the carelessness of those who write birth and death certificates. Incompleteness, inaccuracy, and illegibility are the cardinal vices in the making of vital statistics records.

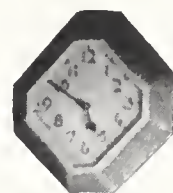
About 10 per cent of all children who are born in California are not given names at the time of their births. These must be added at a later time through the filing of supplemental reports. This makes a large amount of unnecessary duplication, but it would seem that this cannot be avoided until parents are able to name their children at the times of their births. The State Department of Public Health receives about five hundred supplemental reports of births each month.

Much information is lacking on a large number of birth and death certificates. Causes of death, as given on death certificates, are often inconsistent, misleading and incomprehensive. It is impossible to classify death certificates properly unless the cause of death is given clearly. The United States Bureau of Census demands specific information relative to the exact cause of death, and physicians might save an endless amount of correspondence to the State Department of Public Health and to the United States Bureau of Census as well if they would use clear and definite statements relative to causes of death. Inconsistencies are commonly entered on both death and marriage certificates as well. Individuals who make such records could be of great assistance if they would carefully check all of the data before filing the certificate. Names should be spelled correctly and the address of place of birth, proper date of birth, and the properly spelled names of parents are essentials which are often neglected.

Too often the errors upon certificates are not discovered until a request is made for a certified copy of the record. The misstatements of fact are then

(Continued on Page 38)

make Nourishing Foods *taste better with this*



THIS is one of the advertisements of The Sugar Institute, appearing in newspapers throughout the country. In order to keep the statements in accord with modern medical practice, they have been submitted to and approved by some of the leading authorities in the field of human nutrition in the United States.



New Seasoning

THE OLD PROVERB SAYS, "Hunger is a good sauce." But what is to be done when there is no appetite or hunger for the foods we should eat?

There is no seasoning more unusual than a combination of sugar and salt in giving familiar foods a new and appetizing flavor. Just taste a pinch of salt and a dash of sugar mixed together and you'll realize what a full-bodied goodness they make.

Then, try such a mixture of salt and sugar in cooking vegetables. In peas, tomatoes, carrots, spinach and cabbage, a level teaspoonful is enough, but suit your taste.

Put it in soups, stews, or cereals as they cook. You'll be surprised to learn that the sugar not only blends deliciously with the flavor of the dish, but emphasizes it.

The most popular mixture to use and keep on hand is equal parts of sugar and salt. You may prefer one part sugar with two parts salt.

Doctors and dieticians recommend the use of sugar as a flavor. Not only does the sugar promote the necessary flow of gastric juices but it is quickly converted into energy. The Sugar Institute, 129 Front Street, New York.



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A REPUTATION FOR SERVICE AND SATISFACTION

CHARLES E. ATKINSON, M. D.
Medical Director

(Continued from Page 36)

revealed and it is only by filing affidavits that the record may be corrected. This involves a loss of time and money which could be properly saved if care were used in making the certificate correct at the time that it is filed. A durable black ink should be used in writing all certificates; the law requires it. Typewritten certificates, properly signed, are much preferred to certificates written in longhand. Certificates which are not written legibly cause mistakes in indexing, making it difficult to locate a certificate when it may be needed. All registrars prefer typewritten certificates, but if they cannot be typewritten they should be written clearly and legibly.—*Weekly Bulletin, California Department of Public Health.*

The Pharmacopeial Convention.—At the recently held Pharmacopeial Convention in Washington the delegates with commercial interests far outnumbered those from the medical profession. For the interests that opposed medical control of therapeutics, leadership was assumed by Henry H. Rusby, the "sacred cow" of certain druggists. Rusby was testifier for the Wine of Cardui Company in its suit against the American Medical Association, a testifier for a firm against which the Post Office Department has issued a fraud order, a testimonial producer for the Fleischmann Company, and he has been the chief supporter of Ambruster, importer of Spanish ergot, in his attacks on the Food and Drugs Department. At the previous convention an agreement was reached that the scope of the Pharmacopeia, at least so far as concerned therapeutic usefulness, be determined by the medical members of the Revision Committee and that questions of pharmaceutical necessity be determined by the pharmaceutical members. At the present convention, Torald Sollmann offered a motion to instruct the Committee on Revision to charge the medical members with the responsibility of final decisions in the selection of products of therapeutic usefulness.

This motion was not adopted, instead it was decided that a two-thirds vote of the Revision Committee would finally settle the question of inclusion of any article. Since the pharmaceutical interests far outnumber the medical representation, this means that pharmacists will determine the admission of drugs to the pharmacopeia. It is clear that the United States Pharmacopeia is confronted with an epoch of degeneration against which the medical and scientific members of the Revision Committee are likely to fight a losing battle. The present organization of the United States Pharmacopeial convention is undemocratic and unscientific. Unless some scientific plan for the revision of the pharmacopeia is adopted, it may be necessary to advocate government control of the entire matter.—*Jour. A. M. A.*, May 24, 1930, p. 1707.

Miniature Golf Courses and Some of Their Problems.—The sudden influx of "Tom Thumb," "Pee Wee," "Miniature," "Thumb Nail," "Midget," and sundry other brands of golf on city lots and back of residences has presented varied questions of some moment. It is reported in the north that Los Angeles has several thousands of these courses, but there is no knowledge of an actual count. Labor laws have their relations to the Scotch game in diluted form. It is illegal, and the penalties are heavy, for residents of California to enter this new industry without taking out workmen's compensation insurance for employees, and this is necessary even if there is only one boy on the payroll.

A few of the courses are of the practice type and larger lots have to be used. There is danger to small boys acting as caddies under the limitations that prevail in cities. It will prove to be the part of wisdom for golf-course owners to engage the services of mature youths, or of men, who are better able to dodge flying balls. It is possible the Department of Indus-

(Continued on Page 40)

Patient Types . . .

The Rheumatic

Regular and adequate bowel elimination constitutes an essential part of treatment in the majority of patients suffering from the arthritic or gouty diathesis.

The comfortable action of Petrolagar is to be preferred to drastic physic. Petrolagar is pleasing to take and mechanically restores peristalsis without causing irritation and does not upset digestion.

Petrolagar, a palatable emulsion of 65% (by volume) pure mineral oil emulsified with agar-agar, has many advantages over plain mineral oil. It mixes easily with bowel content, supplying unabsorbable moisture with less tendency to leakage. It does not interfere with digestion.

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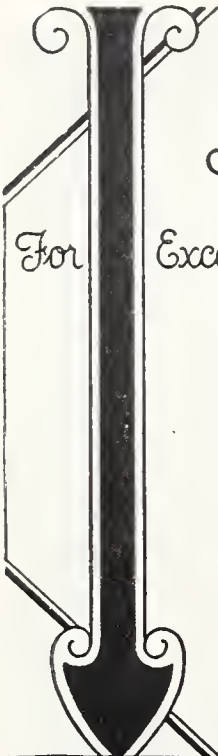
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For Treatment of

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Home for Aged and Infirm

A quiet, secluded place in the country

RATES REASONABLE

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(Continued from Page 38)

trial Relations may include this form of lot-caddying among the hazardous occupations forbidden to the young.

Here is a summary of the Child Labor Law applicable to miniature golf courses: Boys under ten years of age and girls under eighteen years of age may not be employed in occupations pursued in any street or public place, except in cities whose population is less than 23,000 according to the latest federal census. Minors under eighteen may not be employed in any occupation between the hours of 10 p. m. and 5 a. m. Minors under eighteen may not be employed in excess of eight hours per day or forty-eight hours per week; their time of work outside of school hours, when added to the time such minors are required to attend school, may not exceed eight hours in any one day. All minors under eighteen, who are not high school graduates, must have permits to work when the public schools are in session. Minors under sixteen must also have vacation permits to work during the regular public school vacation periods.—*California State Department of Industrial Relations.*

Clinics for Crippled Children.—Clinics for the purpose of making diagnoses and recommendations for the treatment of crippled children have been held, during the past month, in Ventura and Watsonville. Sixty children attended the clinic at Ventura and forty-five were present at the Watsonville clinic. Competent medical examiners conducted these clinics and their recommendations for the removal of physical defects by corrective treatment are being put into effect.

Since the Crippled Child Act went into effect, a total of \$84,000 has been spent for relief to crippled children. This comparatively small sum of money has brought relief from suffering and rehabilitation to large numbers of California children who might otherwise have been forced to suffer throughout their whole lives and eventually become financial burdens

not only to their immediate families, but to their respective communities as well.—*Weekly Bulletin, California Department of Public Health.*

Lord Balfour on Growing Old (*Manchester Guardian*).—In the light of his achievements during recent years it is interesting to recall today the terms in which Lord Balfour announced his resignation of the leadership of his party in 1911. He wished, he said, to leave that position of heavy responsibility before he could be "suspected of suffering from the most insidious of all diseases, the disease which comes upon those who, without losing their health or their intellect, nevertheless get somewhat petrified in the old courses which they have pursued, whose authority grows because they have been long in the public service, or have been great men of science or business or whatever it may be, but who cannot deal with the great problems which in this changing world are perpetually arising with all the freshness and elasticity really desirable in those who have to conduct great concerns."

He added that no man ever knew in himself when that moment had come. The sort of malady of which he is speaking might attack people who were in the prime of life and of intellectual vigor as long as the intellectual vigor was exercised along the old lines, but who nevertheless were less capable of adapting themselves to the changing circumstances of life than those who were of less authority because younger, and yet were more capable also because younger. "I am vain enough to hope," he said, "though no man can tell, that I have not yet reached that period, but I should be miserable if I ran the margin fine."—*The Journal of the Michigan State Medical Society, July, 1930.*

The capacity of the human brain is tremendous, but people put it to no use. They live sedentary mental lives.—*Thomas A. Edison.*

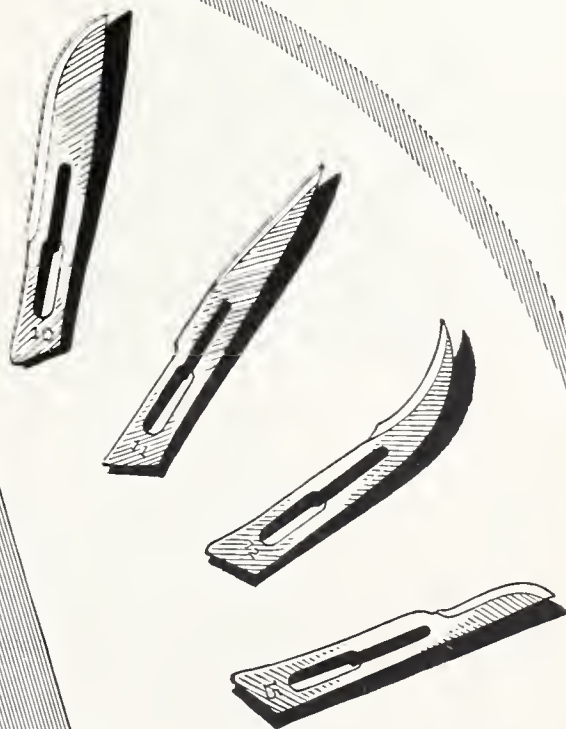
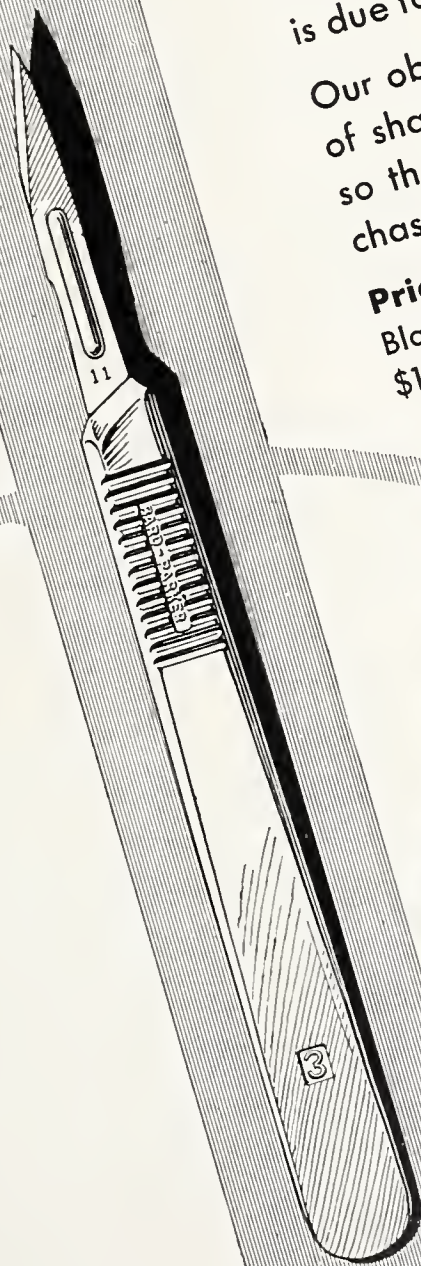
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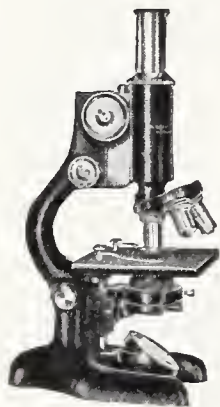
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Business Ability of Medical Men.—The custom is entirely too common of charging medical men with lack of business ability and enterprise, and the charge too often goes unrefuted or the plea of guilty is too readily offered. The pursuit of his profession and adherence to an established code of ethics, it is true, tend to make the physician more scrupulous and more lenient in his dealings with his fellows, but that he is deficient in the higher and finer business instincts cannot be successfully maintained. Bartering, the keeping of accounts, the enforcement of collections and the like are often irksome to the professional man, with their resultant material sacrifices. While the average income of medical men may be smaller than that of workers in other fields, it is doubtful if failures are more numerous among the practitioners of medicine.—*The Pennsylvania Medical Journal*, August, 1930.

State Medicine.—There is going on before our eyes a socialization of medicine. How far it will go no man can tell. What reaction it will call forth we cannot say. But whether we like it or not, there it is.

It runs contrary to a strong tendency in the practice of medicine which in the past has made this seem (to some individuals) a desirable vocation. Most physicians are individualistic. Some physicians are practicing medicine rather than following a commercial pursuit which would bring greater financial reward, because they can not be happy working for a boss. It is not for pure altruism they practice medicine. It is because medicine offers a certain freedom to order their lives as they see fit. "A poor thing but mine own, sir." Yet it is not a narrow selfishness that binds them to it. They are taking sides with the individual against the mob, the spirit of which is

(Continued on Page 44)

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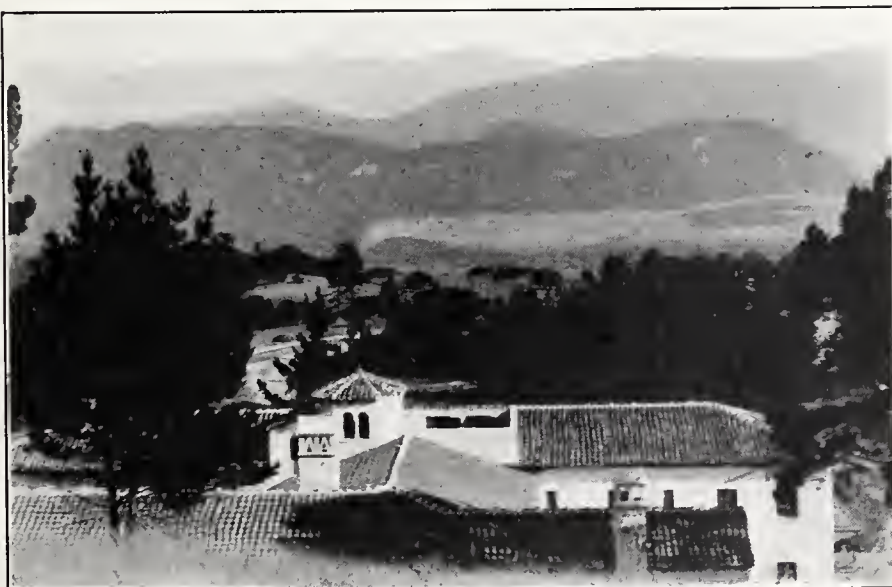
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(Continued from Page 42)

threatening our civilization, as it has threatened and disintegrated other civilizations before ours.

This issue of the individual against society can not easily, in every case, be stated clearly, and generally is not so stated, so that there is need of full and free discussion of not only what lies on the surface, but of those hidden springs of action, those unformulated hypotheses, those latent beliefs, that should be dragged out into the light of day and recognized for what they are. If they are reasonable and cogent, let us know them as such; if, in the light of reason, they are illogical, incoherent, not pertinent, let us learn this also.

It is because there has been introduced House Bill No. 351* that the JOURNAL prints the plea of an advocate if the bill, and welcomes a discussion of the principles and practices involved. It appears that the bill has little chance of becoming law now, but it is timely to consider fully and frankly what is involved, the tendencies of the times and all the reasons for and against what is here proposed.

The subject of the bill as set forth in Section 1 is for the purpose of furnishing a free and complete medical service to the people of the commonwealth of Massachusetts, patterned upon the bureau of medicine and surgery of the United States Navy.

The administration of this department was designed to consist of a commissioner of public medicine assisted by a board of five other members of the medi-

* This bill was designed to create a Department of Public Medicine and Health to take over the activities of the Department of Public Health and of the Department of Mental Diseases, and certain of the activities of the Department of Public Welfare and of the Department of Industrial Accidents.

It was presented by Mr. Page, a member of the House, on the petition of Armand C. Bang and Gilbert W. Haigh. Mr. Bang has been referred to as a statistician who is interested in certain political activities. Dr. Haigh frequently contributes to the Journal on matters relating to state medicine.

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cal corps as deputy commissioners and the five medical administrators were to be registered physicians of at least forty years of age who would be appointed by the governor. At the expiration of five years the succeeding members should be selected from the three highest ranks of the medical corps (senior medical directors, medical directors, and medical inspectors) in open and competitive examinations conducted under rules promulgated and established by a board of examiners appointed by the first medical administrator, to serve during good behavior and subject to rules of retirement hereinafter specified. Vacancies shall be filled by the holding of special examinations.

Section 9 provides for the detailed completion of the department of physicians and surgeons; Section 10 relates to the detail of the division of dentists; Section 11 to the division of nurses; Section 12 to the division of pharmacists and chemists; and Section 13 to the division of technicians.

Section 14 refers to the establishment or abolition of such other divisions and sub-divisions as it shall deem necessary.

Section 15 provides for the upkeep of public hospitals and the forces employed therein as well as all private hospitals. It shall have full supervision of all private hospitals, and their employees; it shall advise and have power of supervision with respect to all questions connected with hygiene and sanitation affecting the people of the commonwealth.

Section 16 provides that the department shall establish and maintain at all times conditions of as perfect health as is humanly possible to attain within the population of the commonwealth through preventive measures rather than cure.

Section 17. The department shall establish a set of rules governing the appointment, promotion, discharge for cause, retirement on account of age or invalidity, hours of duty, sick leave, annual vacations,

(Continued on Next Page)

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(Continued from Preceding Page)

special vacations for study, and pensions of the personnel of its various divisions with a view to establishing within the department a perfect esprit de corps and coöperation.

Section 18. The department shall render free medical and surgical services of all kinds known to science in all cases of sickness, accident, and childbirth, to all citizens of the commonwealth at any time when called upon.

Section 19. Non-citizens of the commonwealth who accept the services of the department shall pay for services rendered.

Section 20. No person connected with the department shall at any time accept a gratuity or present in payment for services rendered hereunder.

Section 21 provides for salaries to be paid to the physicians and dentists and other persons employed.

Section 22 refers to the payment of nurses.

Section 23 relates to rental allowances for the employees.

Section 24 permits doctors' and nurses' yearly salaries and allowances in proportion to the number of years in practice.

Section 25 provides for securing a sufficient number of registered members of the medical and allied professions in case there is a shortage.

Section 26 provides that all expenses shall be paid from the treasury of the commonwealth, giving to the first medical administrator the authority to expend a sum not exceeding one million dollars as preliminary expenses in establishing the organization of the department and apprising the public thereof.—*The New England Journal of Medicine*, May 29, 1930.

The Mystic Signs of Medicine.—When a doctor makes out a check, he writes the amount both in words and figures. Otherwise a bank wouldn't cash

it. But when he writes a prescription he denotes the amount by a queer little curlicue and then it is up to the nurse or chemist to decide what it means. If the curlicue looks something like the letter "Z," then one teaspoonful is meant. If the Z has an extra turn on the top it stands for eight times as much. Thus a blot or a speck of dirt or even poor penmanship may make the symbol for a dram very easy to confuse with the symbol for an ounce.

Inasmuch as such a confusion was recently followed by the death of a patient, why should not physicians in future be required to take a precaution with their prescriptions similar to that which they take with their checks?

Many of the medical fraternity do love to surround themselves with a certain amount of voodooism, no doubt for the psychological effect. But when ordering a dose of a dangerous drug it would be the part of prudence to indicate the quantity in the vernacular as well as by an international symbol. If the dose is a dram, why not write it down as a dram and not leave a patient's safety dependent upon the accurate deciphering of whether a sometimes hastily written hieroglyphic represents a teaspoonful or an ounce? Or, if it be essential to mystify the laity, recourse could be had to cubic centimeters, provided that the number to be taken is written out in words as well as figures.—*Toronto Evening Telegraph*.

Nursing Standards Raised.—Beginning January 1, 1931, students who desire to enter schools of nursing in California shall have graduated from high school or shall have completed an equivalent education. This ruling will not affect more than five or six of the fifty-two schools of nursing in the state, as the majority of such schools for some time established graduation from high school as a prerequisite for entrance upon schools of nursing.—*Weekly Bulletin, California Department of Public Health*.

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The Drug Racket.—At the recent Pacific Northwest Medical Association meeting at Butte, Dr. C. D. Leake, professor of pharmacology at the University of California Medical School, applied the term "drug racket" to the multiplicity of preparations of well known and accepted pharmacopeial drugs which are zealously offered to practicing physicians. He stated that they possess no therapeutic effects superior to the drugs with established reputation, but they sell at exorbitant prices which is an imposition on the unsuspecting patient. An example is the recognized hypnotic barbitol, whose effects are well known to all physicians. He enumerated a half-dozen or more preparations with fancy names prepared by various drug manufacturers, each of which is recommended as superior to barbitol and which costs the patient from two to six times the price of this drug. He stated that no evidence has been confirmed that any of these are in any respect superior to the drug which they aim to supersede. Other drugs were cited with established therapeutic effects which are duplicated by various preparations under numerous drug names, all of which cost the patient increased expenditure of money with no corresponding increased therapeutic results. An earnest appeal was made that physicians should confine prescriptions to drugs recommended by the pharmacopeia and indorsed by New and Non-official Remedies.

The speaker dated the flood of proprietary remedies which have in recent years captured the patronage of the medical profession to a striking extent to the era of therapeutic nihilism, instituted by beloved and authoritative Osler. He advocated the return to the Hippocratic doctrine of depending upon nature in the healing of disease. As a result of this influence there followed a lapse in prescription writing so that many physicians graduated with little knowledge of this art. This left an open field for the seductive approach of the skillful detail man from a drug house, who per-

(Continued on Next Page)

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sueded the pliant practitioner to administer the palatable attractive preparation designated by a fanciful name which often conveyed no idea of the drug which constituted its basic principle. The present urge is that medical practitioners return to prescribing individual drugs to obtain expected results, both in the interest of the patient for recovery from disease and the conservation of his financial situation. The plea, presented with attractive zeal, is one which should demand the thoughtful attention of all earnest and conscientious practitioners.—*Northwest Medicine*, August 1930.

Medical Bibliography.—Some people keep a dictionary to enable them to correct their errors in spelling and when they resort to it are content to see that they made no error in assembling, in their right order, the letters in the doubtful word. Others when they look up a word are concerned with the finer shades of its meaning and are interested to ascertain if the word chosen was one conveying the particular meaning that was intended. Some are looking for equivalents or synonyms. Still others are concerned with the derivation of the word and any attached etymological significance. There can be no question but that the reader or writer who uses a dictionary in this latter way is sure to benefit more by its possession than the one who is content to satisfy himself merely on the correctness of his orthography. All the information that a good dictionary provides would have been available for almost the same expenditure of time and effort.

Somewhat the same observation may be made in respect to the users of libraries. Certain readers go to verify a reference; some to see what information they may gain on a topic about which they have no knowledge, nor any idea how to go about the task of acquiring it, at least in a way to insure the greatest amount of benefit for the time expended. Still others go to inform themselves upon what others have writ-

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ten on a matter about which they themselves have considerable knowledge. A well-arranged library is a dictionary on a large scale, and no one should be content to use it for the least that may be gotten out of it. Bibliographical research is interesting in itself, for when one has sought out all that has been said on a subject there is a satisfaction in that accomplishment alone. A number of books have been written on the topic as it applies to general literature which are of inestimable value to those working in this field. To a lesser extent is this true in respect to medical bibliography. The volume of medical literature is being so constantly added to and so frequently is there no way of determining the value of the article, monograph or whatever it may be, that the art of running to earth a particular clue is oftentimes a difficult one. Furthermore much that is written has no other excuse for occupying space in the columns of a journal and subsequently encumbering the shelves of a medical library than to keep the author in the public eye. Much of the difficulty that confronts those whose duty it is to attend to the accessions of a medical library would be overcome if the medical profession would learn to use the collection of books to which they have access in the broader bibliographic sense. If this were done many an author would not rush into print, for he would learn that the value of his contribution is limited, at least in the form in which it is presented and not only would unprofitable duplication be avoided, but his own mastery of the subject be greatly enhanced. It is probable that the decessions which a librarian could make if he exercised his judgment in discarding literature of this description would furnish him shelf space for worthwhile literature for some years to come. The custom of appending bibliographies which have never been thoroughly digested is a bad one for at least two reasons, entirely apart from its dishonesty. In the first place, it breeds carelessness in the author,

(Continued on Page 51)

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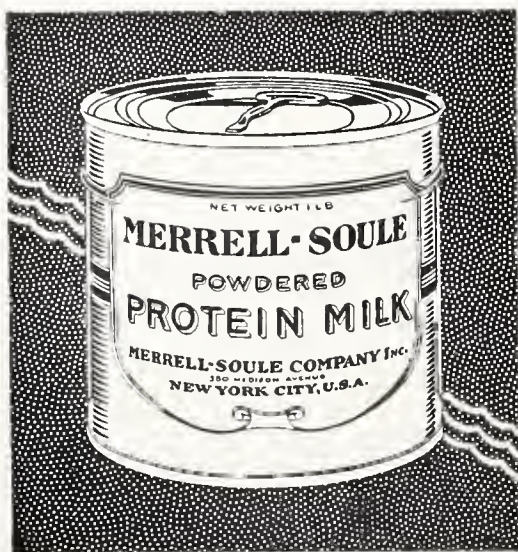
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(Continued from Page 49)

and in the second place it compels library authorities to keep much of this comparatively worthless material upon their shelves because so long as such references are included in a bibliography someone is sure to call for them and find fault with the library facilities if they cannot be produced. It is one of the objects of the Library Committee of the Boston Medical Library in striving to develop a bibliographic service to help in the cultivation of a discriminating sense of the value of current medical literature in order to assist the users of our library and improve the character of their scientific and literary efforts, thereby incidentally helping us in our accessions and decessions.—Editorial, *New England Journal of Medicine*, August 1930.

"Rogues' Gallery."—More than six months were required to compile the index of the new "Rogues' Gallery" of the New York City department of health.

This index includes the names, aliases, and records of over 25,000 medical quacks, "cure all" manufacturers, nostrum peddlers, diet inventors, and all others who prey on the ill and gullible well.

The "gallery" was compiled by the National Better Business Bureau at the request of the department of health, the work being carried out, we read in the official release from the department, under the direction of Special Deputy Health Commissioner Edward F. Brown, who conceived the idea.

The thousands of folders disclose the life histories and careers of abortionists, medical crooks, quacks, charlatans: manufacturers of questionable medicines, worthless hair growers and poisonous tonics; peddlers of "Indian herb" concoctions; harmful cosmetics, including rouges, powders, creams, washes, toilet waters, lipsticks, etc.; manufacturers and peddlers of "horse collars" and other useless electric devices; "inventors" and peddlers of worthless diets, exercise and reducing

(Continued on Next Page)

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(Continued from Preceding Page)

systems; and a complete list of the manufacturers and analysis of tonics, patent medicines and other medical articles offered for sale in drug stores and other shops, which do not have the approval of the American Medical Association.

The efforts of Commissioner Shirley W. Wynne to rid the radio broadcasting field of medical quacks and other charlatans really marked the beginning of the work, for at that time he advocated the compilation of an "Indexus Expurgatorius" to be used as a guide by owners of broadcasting stations.

Since these restrictions applied only to New York City, Doctor Wynne appealed to the National Radio Commission, the United States Public Health Service, and the Federal Trade Commission for a joint survey of the radio field throughout the country. It was while waiting for these organizations to take action that Doctor Wynne embarked the health department on the compilation of its own index.

This Rogues' Gallery is another step in the direction at least of putting a curb on quackery, for the rogue does not want to have his record known. It will supplement the work of the Bureau of Investigation of the American Medical Association and the National Better Business Bureau in exposing and cataloguing the crooks and in keeping that eye on them from which they are eager to hide.—*The New England Journal of Medicine*, August 7, 1930.

Medical History, Washington's Campaign Against Smallpox in the Continental Army.—In praise of Washington's purely military achievements, the facts concerning his campaign against smallpox in his small and ragged army are sometimes forgotten. It may not be too much to say that his orders regarding inoculation of the troops under his command at Morristown in 1777 may have been a decisive matter in winning the Revolutionary War.

Hughes gives a most interesting account of this incident in his third volume of "George Washington" (1777-1781.)

He tells us that the sickness and bad morals of the army at this time caused much added worry to the already heavy burdens of the Chief. In August 1776 he says that out of 17,000 troops, 7000 were sick at once, and thousands died.

Washington was the victim of a severe attack of smallpox in Barbados in his youth. He became, we are told, a staunch advocate of inoculation. We must remember that Jenner's studies of cow-pox did not begin until 1775-1778.

"Washington had persuaded Martha to take smallpox in 1776, and he now made the heroic resolve to inoculate everybody and get it over with. His own camp was turned into a hospital and since he refused to accept any soldiers who had not undergone the mild form of the disease all the recruiting camps became hospitals."

"The result was a grave delay in building an army, but when he got his man he had one less assurance of losing him in a crisis."

Ashbel Green, later to become president of Princeton College, we are told, was a boy of fourteen, living near Morristown at this time. There was consternation among the citizens when it became known that Washington contemplated quartering and inoculating his army at Morristown.

Washington told the anxious leaders of the townspeople that he anticipated no trouble from the inoculation of the troops and that any townspeople affected would be treated by the physicians without charge.

Green states that in his whole family "there was not a single pock that filled." "The whole army," he says, "had the disease so lightly that there was not a day when the troops could not have marched against the enemy." For a time his father's church became a

(Continued on Page 54)

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(Continued from Page 52)

hospital for those people who had natural smallpox before they could be inoculated. He writes: "More frightful and pitiable human beings I have never seen. The heads of some of them were swelled to nearly double their natural size, their eyes were closed, and their faces were black as coal. The most of these died."

Hughes tells us that: "The colonies must have presented to the enemy such a face as was enough to keep Howe at a distance." Creswell, an Englishman who was marooned in Virginia, described the look of some of Washington's neighbors: "Go to Alexandria to dinner. All the townspeople and a regiment of soldiers that are quartered there are all inoculated for the smallpox, and I believe there is a great number that has the greatpox along with them. Such a pock-eyed place I never was in before."

Had not Washington taken the bold stand he did at Morristown, it seems almost certain that his small army would have been "totally and permanently incapacitated" as a fighting unit.—By William Pearce Coues, M. D., *The New England Journal of Medicine*, June 26, 1930.

Cure of Cancer.—First, we want to face the facts and know for certain whether or not the patient actually has cancer. This implies biopsy. Secondly, we must be able to cure cases in all stages, even in the face of recurrences and generalized metastases. Thirdly, we want the cure to be permanent. These three criteria, histologic diagnosis, cure of metastatic cases, and permanent cures established by follow-up examinations, extending over five-year periods, should be applied to all alleged cancer cures. From this point of view immediate cures of local tumors in experimental animals, however intriguing, are false alarms. Serious and extensive clinical trial of any method by workers other than its advocate await, first, the sub-

(Continued on Page 57)

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"Only those clinical laboratories in which the space, equipment, finances, management, personnel and records are such as will insure honest, efficient and accurate work may expect to be listed as approved."

"The housing and equipment should be sufficient to permit all essential technical procedures to be properly carried out."

THE DIRECTOR

"The director of an approved clinical laboratory should be a graduate of an acceptable college or university of recognized standing, indicating proper educational attainments. He shall have specialized in clinical pathology, bacteriology, pathology, chemistry or other allied subjects, for at least three years. He must be a man of good standing in his profession."

"The director shall be on full time, or have definite hours of attendance, devoting the major part of his time to the supervision of the laboratory work."

"The director may make diagnoses only when he is a licensed graduate of medicine, has specialized in clinical pathology for at least three years, is reasonably familiar with the manifestation of disease in the patient, and knows laboratory work sufficiently well to direct and supervise reports."

"The director may have assistants, responsible to him. All their reports, bacteriologic, hematologic, biochemical, serologic and pathologic should be made to the director."

RECORDS

"Indexed records of all examinations should be kept. Every specimen submitted to the laboratory should have appended pertinent clinical data."

PUBLICITY

"Publicity of an approved laboratory should be directed only to physicians either through bulletins or through recognized technical journals, and should be limited to statements of fact, as the name, address, telephone number, names and titles of the director, and other responsible personnel, fields of work covered, office hours, directions for sending specimens, etc., and should not contain misleading statements. Only the names of those rendering regular service to the laboratory should appear on letterheads or other form of publicity."

FEES

" * * There should be no dividing of fees or rebating between the laboratory or its director and any physician, corporate body or group. * * *"*

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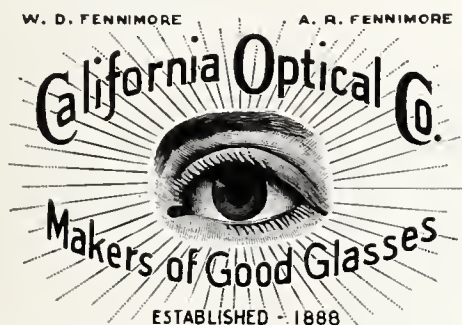
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(Continued from Page 54)

mission of the sections to substantiate the diagnosis in all cured cases; second, proof that the disease had progressed to dissemination at the time of treatment; and third, a five-year follow-up to show the permanence of the cure.—*Bulletin, American Society for Control of Cancer*, April 1930.

A League of Students.—The Prince of Wales asks the public to invest £30,000 in a new undertaking. Whether he be answered by the generous or by the discriminating, the result should be the same, and the National Union of Students should get its money, its headquarters, and a certain necessary endowment. The union is a federation of the university unions of the country. It is federated in its turn with an international union comprising similar unions in three of the dominions and in thirty-seven other countries. The world's undergraduate population—in a confederation of 800,000 members—has within a few years and with the encouragement of the universities quietly furnished itself with a remarkable organization. The twofold work of the British section illustrates the work of the whole. Its aims are to welcome and befriend the foreign or dominion student, and to speed and help its own members abroad. On one side of its activities it is concerned with hospitality and on the other side with travel. The whole is a practical venture in intellectual coöperation, set on foot as much to meet a need as to create it, and a practical extension of university life. Travel and study were never far apart, and travel, even unacademic travel, is a form of study in itself. The two are inseparable today. It is well for the world that youth should better acquaint with youth and it is well for a nation, and not least for this nation, that it should not be outstripped by the experience of its friends and rivals.—*The Canadian Medical Association Journal*, August 1930.

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First, it can be said that cancer never develops in sound tissues, and this knowledge is manifested in the understanding of physicians of the danger of permitting sources of chronic irritation to continue. Second, in the early stages of malignant change surgical removal of the growth, or, in suitable cases, the use of radiotherapy gives a high percentage of cures.

It is difficult, however, for the laity to appreciate to what extent cure is possible in cancer, and in their very fear of a condition which they believe to be hopeless they often delay surgical consultation. This widespread pessimism exists because when death occurs from cancer the cause of death cannot be concealed, whereas persons who have been operated on successfully for cancer hide the fact that they have

had malignant disease because knowledge of it would stand in the way of their future advancement. As a consequence the public has known much of the horrors of the disease and little of its curability.

The close relation of chronic irritation to cancer of the visible surfaces of the body cannot be controverted. For instance, cancer of the scalp is common among the Chinese, who shave the head with dull and rough-edged instruments, and is uncommon among people who do not have this practice. In China the men eat at the first table, when the rice is hot, and their practice of throwing the rice by means of chopsticks with considerable force into the posterior part of the pharynx and the first portion of the esophagus, results frequently in cancer in this situation. The Chinese women, who eat at the second table when the rice is cold, do not often so suffer.

A form of cancer of the mucous membrane of the mouth which is common in the Philippines and in parts of India, is the result of chewing the betel nut,

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which, wrapped in its leaf with lime, is carried almost constantly in the cheek. Note the great reduction in cancer of the mouth and about the gums as the result of good dentistry, and in cancer of the lip with the disappearance of the clay pipe. It is said that cancer of the breast, so common in civilized women, has no corresponding frequency in women of those races who leave the breasts exposed. In the mountains of Kashmir, where the natives carry charcoal braziers strapped to the lower abdomen, cancer of the skin just above the pubes is common.

The relation of chronic irritation to cancer of the external surfaces of the body is parallel by cancers of the internal surfaces, but the evidence is necessarily indirect.

Cancer of the gall bladder is seldom seen except in connection with gall stones, and even those investigators who do not believe that cancer of the stomach often has its origin in ulcer, admit that cancer on ulcer does not occur in a percentage of cases which Hurst, of Guy's Hospital, London, puts at about 20 per cent. In our own experience, while the percentage in which the histological examination of excised cancers of the stomach for evidence of preceding ulcer varies in different series of cases, the development of gastric cancer on some type of demonstrable pre-cancerous disease, such as ulcer, is present in more than 25 per cent. When cancer of the mesoblastic structures occurs, the preceding source of chronic irritation is probably biochemical in nature.

When we attempt to explain what happens in chronic irritation in relation to cancer, there are two outstanding points of view.

First, it is believed that some microorganism or other outside agent enters the body and gives rise to cancerous growth. However, if this were true, secondary cancers would show the histopathological characteristics of the organ in which they occurred, whereas they show those of the original lesion. For

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instance, if a cancer originating as an adenocarcinoma of the mucous membrane of the stomach extends to the liver by metastasis, the new-growth proves to be not a cancer of the liver, but a cancer of the mucous membrane of the stomach in the liver, proving that the malignant cell itself has been transplanted to the liver, and is itself parasitic.

Second, it is equally probable that when a breach of continuity in the tissues occurs as the result of long-continued chronic irritation, the attempt is made first to heal the defect with normal cells, but in the course of time, as the reparative processes are exhausted, cells less and less mature are thrown into the breach, until finally embryonic cells, but the best that can be supplied, replace the normal epithelium and take on malignant change.

This brings up an interesting side line of thought, and that is that the age of cells and their condition must play a prominent part in the development of malignant disease. Perhaps the reason cancer usually appears after middle age is that the cells of the body have lost the reparative power of youth, have a lessened immunity, and thereby have become more vulnerable. Again those organs of the body which have a relatively short heredity are more often involved than organs which we know to be more primitive and which might be said thereby to have gained hereditary resistance to the disease.

In this connection the frequency of cancer of the stomach and of the large intestine and rectum, what might be called modern organs of convenience, as contrasted with the infrequency of cancer of the more primitive small intestine with its ancient heredity, is suggestive. Malignant disease of the testis, which is the primitive organ, is rare as contrasted with the many varieties of malignant disease of the ovary, a relatively recent organ derived from the primitive testicle. One can carry such a theory still farther and point out the great incidence of cancer of the breast and the uterus in women at the menopause, whereas in men there is no such frequency of cancer in the generative organs, because no comparable senile change takes place.

If we attempt to visualize the problem of cancer, therefore, certain factors must be borne in mind. The age and the condition of the bodily cells, especially those cells that have a protective function, must be considered. Again, those organs of the body, the breast and the uterus, which undergo early senility, carry with them an increasing risk of cancer, and finally, the only reasonable explanation why 90 per cent of persons do not have cancer and why 10 per cent do have cancer is that there is a varying degree of immunity in individuals to the cause or causes of cancer, which leads to the hope that resistance to this disease may be increased as it has been in other diseases of man.—Editorial by William J. Mayo, in the August 1930 issue of *Surgery, Gynecology and Obstetrics*.

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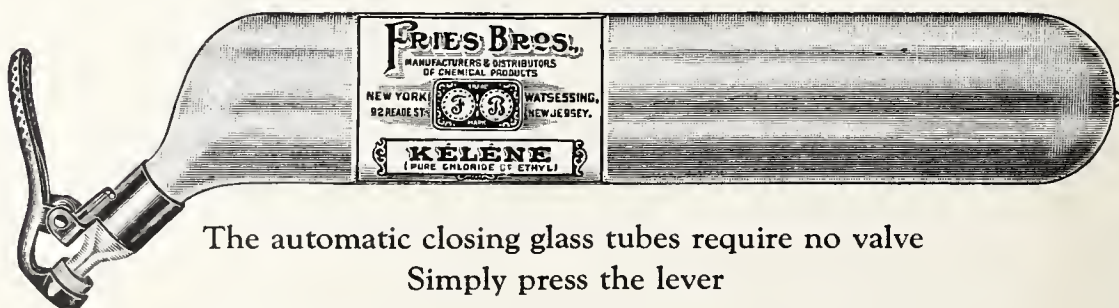
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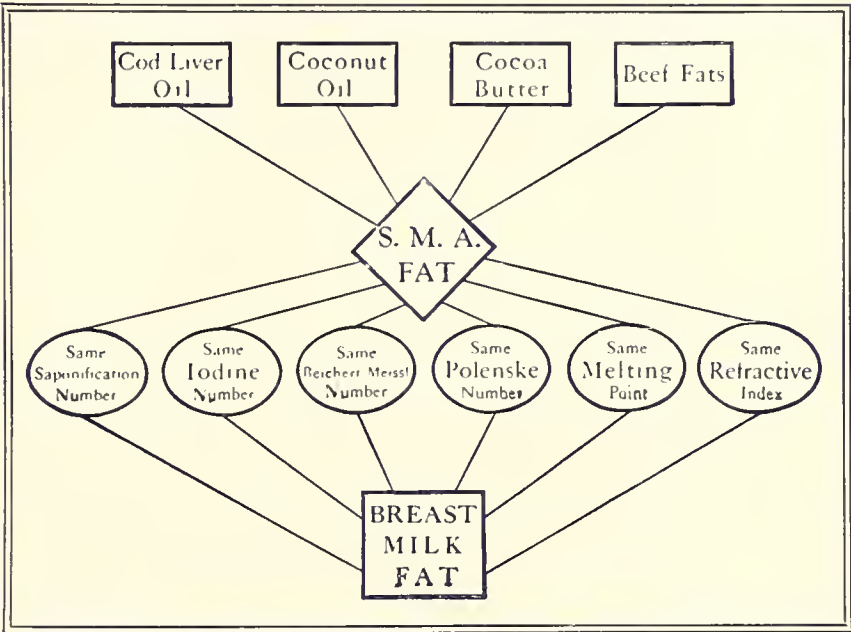
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CONTENTS AND SUBJECT INDEX

SPECIAL ARTICLES:

Dermatologic Expressions of Internal Medical Diseases. By Fred D. Weidman, Philadelphia, Pennsylvania.....697

Anatomy Acts of California. By A. W. Meyer, Stanford.....703

Fracture of the Neck of the Femur. By John C. Wilson, Los Angeles.....707
Discussion by George C. Hensel, San Francisco; John Hunt Shephard, San Jose.

Sodium Isoamylethyl Barbiturate. By L. A. Rethwilm, San Francisco.....712

Chemical Adjuncts to General Anesthesia. By Chauncey D. Leake, San Francisco.....714

The Influence of Sodium Amytal on Urinary Excretion. By Ludwig A. Emge and P. E. Hoffmann, San Francisco.....718

Tribromethanol as a Preoperative Narcotic. By Dorothy A. Wood, San Francisco.....719

Hay-Fever Plants of Utah. By J. Mercer Anderson, Salt Lake City, Utah.....723

Postencephalitic Paroxysmal Oculogyric Crises. By Garnett Cheney, San Francisco, and Samuel Martins, Los Angeles.....724
Discussion by Thomas G. Inman, San Francisco; William L. Bender, San Francisco; Arthur E. Mark, Los Angeles.

Diseases of the Tongue. By H. C. Lindsay, Pasadena.....729
Discussion by Samuel Ayres, Jr., Los Angeles; Moses Scholtz, Los Angeles; Harry E. Alderson, San Francisco.

Missed Intra-Ocular Foreign Bodies. By Barton J. Powell, Stockton.....733

The Syphilitic Kidney. By Irving Bancroft, Los Angeles.....735
Discussion by Harry E. Alderson, San Francisco; Henry H. Lissner, Los Angeles; George D. Culver, San Francisco.

Ureteral Pain After Nephrectomy—Treatment by Ureterectomy. By Lewis Michelson, San Francisco.....738
Discussion by Anders Peterson, Los Angeles; William E. Stevens, San Francisco.

Girolamo Fracastoro (1478-1553)—and Syphilis. The Lure of Medical History. By W. K. Stratman-Thomas, New York City.....739

CLINICAL NOTES AND CASE REPORTS:

The Radicular Syndrome Following Infection with Tetanus. By Mary Lawson Neff, Los Angeles.....742

Aberrant Salivary Gland in the Tonsil Fossa. By Rulon S. Tillotson, Woodland.....744

Horseshoe Kidney. By A. J. Scholl, Los Angeles.....745

A Varicose Vein Injecting Needle. By Raymond L. Schulz, Los Angeles.....746

BEDSIDE MEDICINE:

Strabismus—When to Operate.....747
Discussion by Roderic O'Connor, San Francisco; Hans Barkan, San Francisco; Joseph L. McCool, San Francisco; Lloyd Mills, Los Angeles.

EDITORIALS:

Some C. M. A. Membership Statistics.....750

The First American Doctor in California, John Marsh—An Historical Contribution to the Medical History of California.....751

Anatomy Acts of California.....753

MEDICINE TODAY:

The Treatment of Poliomyelitis. By E. B. Shaw and H. E. Thelander, San Francisco.....754

Radium in Hemorrhagic Conditions. By Orville N. Meland, Los Angeles.....755

Artificial Diphtheria Antitoxins. By W. H. Manwaring, Stanford University.....756

Diagnosis of Allergic Rhinitis. By H. P. Merrill, Los Angeles.....756

STATE MEDICAL ASSOCIATIONS:

California Medical Association.....757

Woman's Auxiliary.....759

Extension Lecture Program.....759

Nevada State Medical Association.....762

Utah State Medical Association.....762

MISCELLANY:

News.....763

Much in Little.....763

Department of Public Health.....763

Twenty-Five Years Ago.....764

California Board of Medical Examiners.....765

Membership and Organization.....766

Medical School Legislation.....768

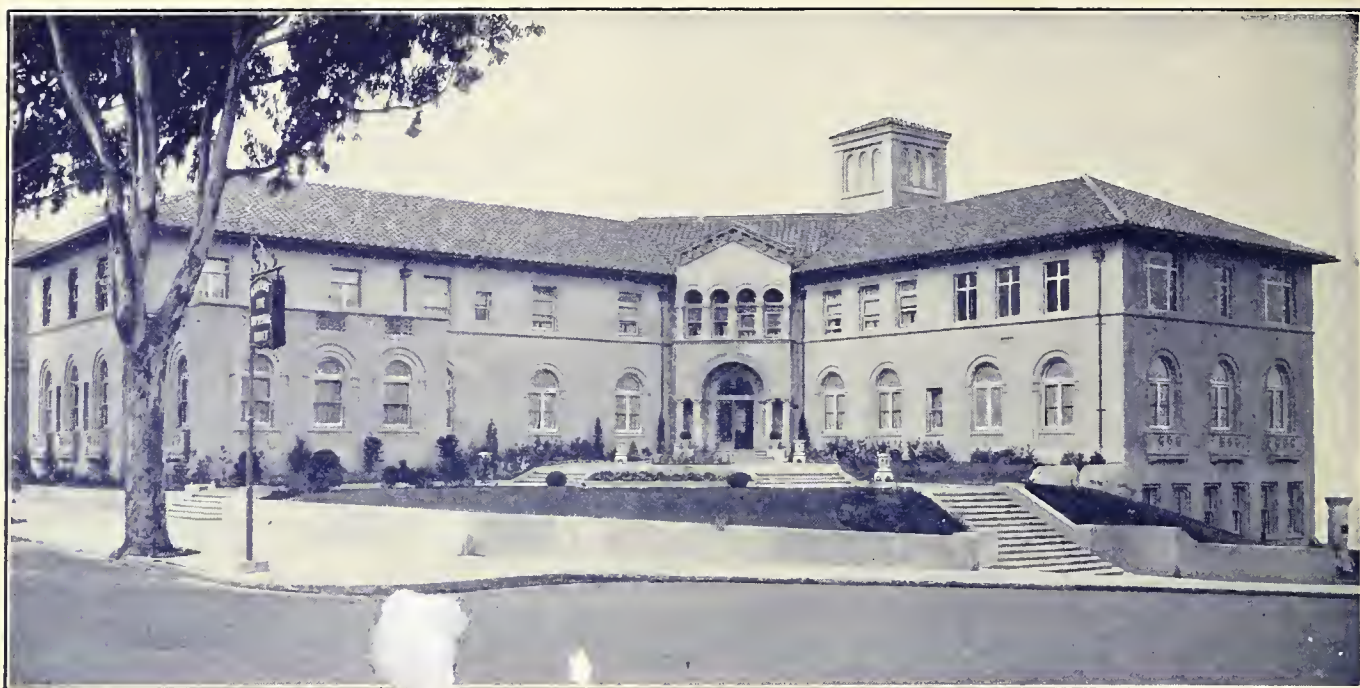
Directory of Officers, Sections, County Units, and Woman's Auxiliary of the California Medical Association.....Adv. page 2

Book Reviews.....Adv. page 11

Truth About Medicines.....Adv. page 14

ADVERTISEMENTS—INDEX:

.....Adv. page 8



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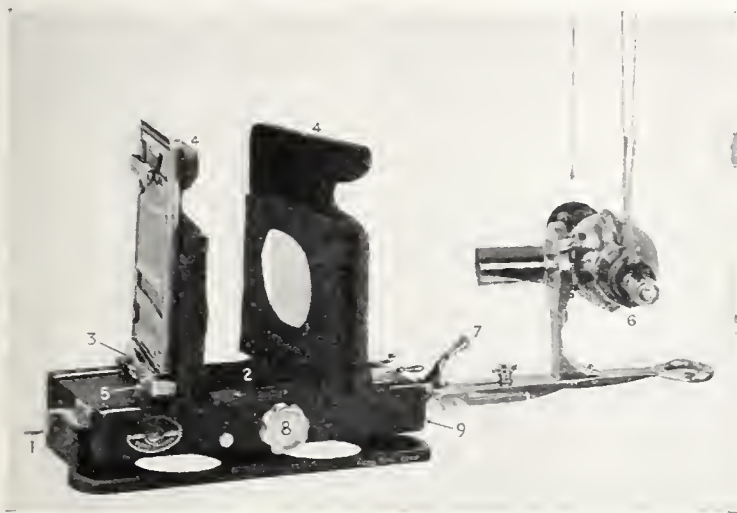
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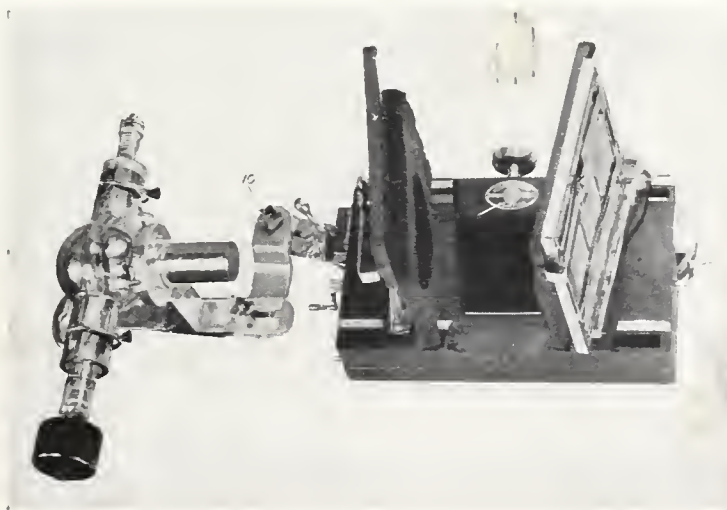
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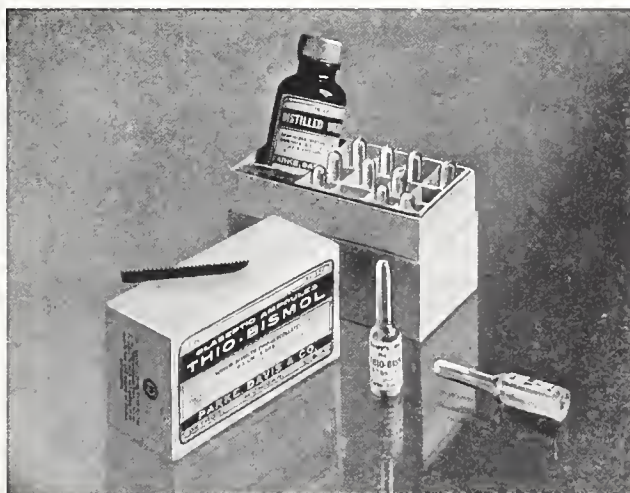
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	Page		Page		Page
Alexander Sanitarium	17	Graduate School of Medicine, Tulane University of La.....	24	Oaks Sanitarium	9
Aloe Co., A. S.....	41	Greens' Eye Hospital.....	2 Cover	Officers of the California Medi- cal Association	2-4
Alum Rock Sanatorium.....	19	Gunn, Herbert, Stool Examina- tion Laboratory	24	Officers of Miscellaneous Medi- cal Associations	6
American Surgical Sales Co., Ltd., The	33	Guth, C. Rodolph, Clinical Lab- oratory	10	Park Sanitarium	24
Approved Clinical Laboratories.....	53	Hanafin Instrument Co.....	37	Parke, Davis & Co.....	7
Banning Sanatorium	46	Hexol, Inc.	44	Podesta and Baldocchi.....	37
Barry Co., The James H.....	54	Hill-Young School of Corrective Speech	24	Post Graduate School of Surgi- cal Technique, Inc.	56
Bausch & Lomb Optical Co.....	42	Hittenberger Co., C. H.....	10	Pottenger Sanatorium	39
Benjamin & Rackerby.....	42	Hoffman-La Roche, Inc.....	13	Purity Spring Water Co.....	15
Benjamin, M. J.....	45	Holland-Rantos Co., Inc.....	24	Rainier Brewing Co.....	44
Bittleston Collection Agency, Inc.	44	Hospitals and Sanatoriums.....	6	Riggs Optical Company.....	31
Broemmel's Prescription Phar- macies	3	Hynson, Westcott & Dunning, Inc.	39	Saint Francis Hospital.....	14
Brown Press	36	Jacobs, Louis Clive.....	28	Santa Barbara Clinic, The	38
Bush Electric Corporation.....	1	Johnston-Wickett Clinic	31	Scherer Co., R. L.....	29
California Lima Bean Growers' Association	39	Joslin's Sanatorium	40	Scripps Metabolic Clinic and Memorial Hospital	18
California Optical Co.....	30	Kelley-Koett Mfg. Co., Inc., The	15	Sharp & Dohme.....	34
California Sanatorium	36	Knox Gelatine Laboratories.....	25	Shasta Water Co., The.....	22
Calso Water Co.....	49	Laboratory Products Co.....	3 Cover	Shumate's Prescription Phar- macies	24
Camp & Co., S. H.....	20	Las Encinas Sanitarium.....	12	Soiland, Albert (Radiological Clinic)	31
Canyon Sanatorium.....	18	Lederle Laboratories, Inc.....	23	Southern Sierras Sanatorium.....	38
Certified Laboratory Products.....	46	Lengfeld's Pharmacy	24	Squibb & Sons, E. R.....	26
Certified Milk	51	Lilly & Company, Eli.....	32	Stacey, J. W., Medical Books.....	11
Charles B. Towns Hospital.....	47	Lister Bros., Inc.....	11	St. Joseph's Hospital.....	40
Children's Hospital	41	Livermore Sanitarium	27	St. Luke's Hospital.....	23
Clark-Gandion Co., Inc.....	14	Maltbie Chemical Co., The.....	28	St. Mary's Hospital.....	29
Classified Advertisements.....	10	Maltine Company, The.....	5	Storm Binder and Abdominal Supporter	41
Colfax School for the Tuber- culous	55	Mead Johnson & Co.....	21	Sugarman Clinical Laboratory.....	28
Compton Sanitarium and Las Campanas Hospital	9	Medical Protective Company.....	16	Towns Hospital, Charles B.....	47
Cutter Laboratory	4 Cover	Medico-Dental Finance Corp.....	48	Trainer-Parsons Optical Co.....	35
Dairy Delivery Co.....	35	Merck & Co., Inc.....	56	Twin Pines	42
Dante Sanatorium	4 Cover	Merrell-Soule Co., Inc.....	50	Union Square Building.....	11
Dewar & Hare Electric Co.....	33	Milk Commission of the Los An- geles County Medical Ass'n.....	51	United States Fidelity & Guar- anty Company	35
Doctors' Business Bureau.....	19	Monrovia Clinic	44	Vitalait Laboratory	12
Dry Milk Co., The.....	52	National Ice and Cold Storage Company	27	Wallace, Sidney J.....	37
Four Fifty Sutter.....	36	New York Polyclinic Medical School and Hospital	9	Walters Surgical Company.....	56
Franklin Hospital	45	New York Post Graduate Med- ical School and Hospital.....	36	Wedekind Co., Frank F.....	47
Furscott, Hazel E.....	24	Nichols Nasal Syphon.....	37	Wilson Laboratories	30
Golden State Milk Products Co.	30	Nonspi Company	40		
Grace Deere Velie Metabolic Clinic, The.....	43				

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Hostels for Young Tourists, Great Britain.—The British Youth Hostels Association has been launched to establish hostels in Great Britain in which young touring cyclists and pedestrians will be given a night's lodging at a very reasonable figure. Scotland already has a series of twenty-five such hostels along the Border and in the Highlands, and there are a few local organizations in England. The new association aims to extend these hostels on a national scale. The scheme is copied from that which has covered Germany in the last twenty years with a network of 3000 hostels where children and young people may procure a bed for twelve cents or less.—*United States Department of Labor, Children's Bureau, Washington.*

The National Institute of Health (Successor to the Hygienic Laboratory).—By the act of Congress approved May 26, 1930, entitled "An act to establish and operate a national institute of health, to create a system of fellowships in said institute, and to authorize the government to accept donations for use in ascertaining the cause, prevention and cure of disease affecting human beings, and for other purposes," the Hygienic Laboratory will hereafter be known as the National Institute of Health of the United States Public Health Service. The author of this measure was Senator Joseph E. Ransdell of Louisiana.

The general purposes of the act are to provide large facilities for investigations of diseases of man and matters pertaining to the public health, to encourage research and the training of individuals engaged therein, to enable the government to accept bequests in aid thereof, and to bring about coöperation with scientific institutions in the prosecution of research work.

Public health investigations by the Public Health Service were first authorized in 1901. Since then substantial progress has been made and many new facts have been discovered which have had an important bearing on the prevention and control of disease. The necessity for this work far outstripped the facilities for its conduct. Under the above-mentioned authority these facilities may be greatly enlarged.

In its development the new institute will have the advantage of the traditions of the Hygienic Laboratory. In reality the Hygienic Laboratory becomes the National Institute of Health which, with enlarged facilities, will be devoted to investigations of the underlying problems not only of communicable diseases, but of degenerative diseases and environmental conditions affecting health.—*United States Public Health Service.*

BOOK REVIEWS

List of Books Received

BOOKS RECEIVED

Applied Bacteriology for Nurses. By Charles F. Bol-duan, M.D., Director Bureau of Health Education, De-partment of Health, City of New York; Surgeon (R) United States Public Health Service. Sixth edition, re-vised and enlarged. Cloth. 12mo of 251 pages, with 80 illustrations. Price, \$2. Philadelphia: W. B. Saunders Company, 1930.

A Textbook of Materia Medica for Nurses. Including Therapeutics and Toxicology. By George P. Paul, M.D., C. P. H. (Harvard). Formerly director of the Department of Hygiene and Industrial Health, Antioch College, Yellow Springs, Ohio. Sixth edition, thoroughly revised. Cloth. 12mo of 356 pages. Price, \$1.75 net. Philadel-phia: W. B. Saunders Company, 1930.

Studies in Ethics for Nurses. By Charlotte A. Aikens, formerly superintendent of Columbia Hospital, Pitts-burgh, and of the Iowa Methodist Hospital, Des Moines. Third edition, thoroughly revised. Cloth. 12mo of 390 pages. Price, \$2.50. Philadelphia: W. B. Saunders Com-pany, 1930.

American Pocket Medical Dictionary. Containing the pronunciation and definition of all the principal terms used in medicine, surgery, dentistry, veterinary medicine, nursing and kindred sciences; with over sixty extensive tables. Edited by W. A. Dorland, A. M., M. D., member of the Committee, American Medical Association, on No-menclature and Classification of Diseases, editor of the "American Illustrated Medical Dictionary." Flexible binding. Octavo of 837 pages. Price, plain \$2 net; thumb index, \$2.50 net. Philadelphia, W. B. Saunders Company, 1930.

Handbook of Pediatric Procedures. By Francis Scott Smyth, M. A., M. D., Assistant Professor of Pediatrics, University of California, 1926-28; Assistant Professor of Pediatrics, Washington University, 1928-30; Associate Professor of Pediatrics, University of California; Pedi-atrician-in-Chief, University of California Hospital and Out-Patient Department, 1930; and Edith I. M. Irvine-Jones, M. B., Ch. B., Instructor in Pediatrics, University of California Medical School. Cloth. Pp. 212. Price, \$2.50. New York. The Macmillan Company, 1930.

Outline in Obstetrics for Nurses. By F. W. Rice, M. D., Instructor in Obstetrics Iowa Methodist Hospital and Broadlawn General Hospital, Des Moines, Iowa. Cloth. Pp. 228, illustrated. Price, \$2. St. Louis: The C. V. Mosby Company, 1930.

Diseases of the Skin. A Textbook for Practitioners and Students. By George Clinton Andrews, A. B., M. D., Associate Professor of Dermatology, College of Physicians and Surgeons, Columbia University; Consulting Derma-tologist and Syphilologist to Tarrytown Hospital; to St. John's Hospital, Yonkers; to Grassland's Hospital; and to the Broad Street Hospital, New York City. Cloth. Pp. 1091, with 988 illustrations. Price, \$12 net. Philadel-phia and London: W. B. Saunders Company, 1930.

Nervous Indigestion. By Walter C. Alvarez, M. D., As-sociate Professor of Medicine, University of Minnesota. Cloth. Pp. 297. Price \$3.75 net. New York: Paul B. Hoeber, Inc., 1930.

Riders of the Plagues. The Story of the Conquest of Disease. By James A. Tobey, Doctor of Public Health. Cloth. Pp. 348, illustrated. Price, \$3.50. New York: Charles Scribner's Sons, 1930.

BOOK REVIEWS

Diseases of the Nose, Throat, and Ear—Medical and Surgical. By William Lincoln Ballenger. Revised by Howard Charles Ballenger. Sixth edition. Pp. 1138. Illustrated. Philadelphia: Lea and Febiger, 1930. Price, \$11.

The revision of any volume of a thousand or more pages offers itself as a formidable task or pleasure, as the case may be. This revised edition is attractive, well constructed, of good paper upon which appears a legible type and well chosen and clear illustrations and plates. The typographical errors are few and unimportant.

(Continued on Next Page)



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BOOK REVIEWS

(Continued from Preceding Page)

The preface to this sixth edition is interesting in its prophecy and promise that the contents to follow will be found to be free from the recapitulation of the mistaken beliefs of our predecessors. Unfortunately one encounters the prescribing of ichthyol and instruction for the employment of leeches in the first one hundred and fifty pages. Ichthyol has such questionable therapeutic value that it may offer itself for argumentation, but as regards the leech there is no ground for discussion.

The contents of the various chapters would still be clear if the reading matter had been made to adhere to the subjects mentioned in the headings and subheadings. There is a most evident mixture of physiology, pathology, therapeutics and treatment given under the heading of anatomy and similar admixed incorporations under the other headings. This naturally results in a large amount of repetition and increases the size of the volume by many unnecessary pages. The system of referring the reader from one part of the book to another and the practice of leaving a subject incomplete with the advice to see a chapter some two hundred pages distant for further details does not appeal to either the casual reader or the student.

Two phases of otorhinolaryngology have been sadly neglected. The ear, nose, and throat problems of infancy and childhood are numerous, interesting and vastly important. The volume dismisses the subject of mastoiditis and cholera infantum with but one page of reading matter. Reference to mastoid anatomy as applied to the child is misleading and inaccurate. Sinus involvement in children is similarly dismissed with but one page of print. Excellent works on both these subjects are, and have been, available for a number of years. A volume of this quality—a standard text—is entitled to the incorporation of at least abstracts of the more conservative of these works.

In at least two instances the editor has permitted speed, as related to operative procedures, to be emphasized and thereby allows the inference that speed is a valuable asset. Speed can never supplant painstaking attention to detail, good judgment, digital dexterity, plus experience in reducing to a minimum the time consumed in the performance of any operation without subjecting the patient to hazards other than those conceded to attend any and all operative procedures. The implantation of the idea of speed into the mind of the undergraduate or the graduate or even the inference that speed is a desirable attribute is lamentable and is directly responsible for as great a number of operative monuments as any other single cause.

Chapter LIV—the Singing Voice—could well be omitted or, if retained in subsequent revision, it should be so changed as to be of more value; as it stands it is of no value to the laryngologist.

The volume, in spite of the above mentioned facts, is worthy of retaining its coveted position as one of the leading texts and should be recommended to the general practitioner as well as the undergraduate and graduated student.

L. F. M.

Doctor and Patient—Papers on the Relationship of the Physician to Men and Institutions. By Francis Weld Peabody. Pp. 95. New York: The Macmillan Company, 1930. Price, \$1.50.

This booklet of ninety-five pages is a very pleasant exposition of the subject named in the title. The author discusses the practice of medicine from the standpoint of the internist. He presents his views clearly, forcibly, and in excellent English. Apparently, Peabody wrote as he felt.

In the lecture, "The Physician and the Laboratory," the author discusses the modern tendency to subordinate

clinical observations to laboratory findings; and he shows the fallacy of this procedure.

The last chapter is a letter which the author had written just before his death. It is entitled "The Soul of the Clinic," and is a frank statement of the manner in which Peabody considered a clinic should be conducted.

The book can be read in an hour, and will repay the time spent in reading it.

S. B.

Infant Nutrition—A Textbook of Infant Feeding for Students and Practitioners of Medicine. By Williams McKim Marriott. Pp. 375. Illustrated. St. Louis: The C. V. Mosby Company, 1930.

Doctor Marriott presents a volume written especially for students and practitioners. The subject of infant nutrition is discussed in a very direct and clear-cut manner. The author has succeeded admirably in sum-

(Continued on Page 14)

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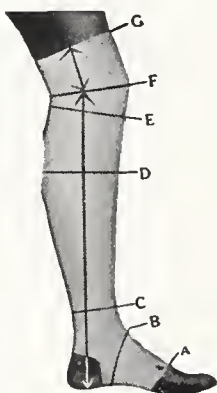
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BOOK REVIEWS

(Continued from Page 12)

marizing present-day knowledge of infant nutrition for the normal and the pathological. The first few chapters deal with growth and development, normal metabolism, and food requirements. Ample consideration is given to the specific foods. The important gastro-intestinal disturbances of infants—vomiting, diarrhea, and constipation—are discussed in detail.

The relationship of chemical pathology to feeding and nutrition, as demonstrated in the chapters, "Anhydremia, Acidosis and Alkalosis," and "Rickets" and "Tetany," shows the important part played by modern science.

Due consideration has also been given to the common infections associated with nutritional disturbances, and special chapters on practical therapeutic measures and medication in infancy are also included.

Adequate illustrations, charts, and clinical protocols serve to make the volume clear-cut and specific.

E. E. S.

American Pocket Medical Dictionary, containing the pronunciation and definition of all the principal terms used in medicine, surgery, dentistry, veterinary medicine, nursing, and kindred sciences; with over sixty extensive tables. By W. A. Newman Dorland. 4th ed. Pp. 837. Philadelphia and London: W. B. Saunders Company, 1930.

That this medical dictionary has reached the fourteenth edition speaks for itself. It is compact and complete enough to be of great use to the medical student, nurses and others needing a quick reference handbook of medical sciences.

L. E.

TRUTH ABOUT MEDICINES

New and Nonofficial Remedies

(Abstracts from reports of Council on Pharmacy and Chemistry, A. M. A.)

In addition to the articles previously enumerated the following have been accepted:

International Vitamin Corporation.—I. V. C. Vitamin Concentrate of Cod Liver Oil.

National Drug Co.—Antimeningococcic Serum.

Parke, Davis & Co.—Gas-Gangrene Antitoxin (Combined) Refined and Concentrated; Soluble Gelatin Capsules, Parke, Davis & Company's Standardized Cod Liver Oil, 10 minims; Soluble Gelatin Capsules, Parke, Davis & Company's Standardized Cod Liver Oil, 20 minims; Soluble Gelatin Capsules, Parke, Davis & Company's Standardized Cod Liver Oil, 2.5 grams; Soluble Gelatin Capsules, Parke, Davis & Company's Standardized Cod Liver Oil, 5 grams.

G. D. Searle & Co.—Chiniofon (Searle); Tablets Chiniofon (Searle), 0.25 gram (4 grains).

C. M. Sorensen Co., Inc.—Inhalant Chloretone Creosote and Eucalyptol (Sorensen).

Spicer & Co.—Tartro-Quiniobine; Tartro-Quiniobine Ampoules, two cubic centimeters.

White Laboratories, Inc.—White's Cod Liver Oil Concentrate.

Nonproprietary Articles.—Quinin Bismuth Iodid; Sodium Potassium Bismuthyl Tartrate.

The following article has been exempted and included with the list of exempted medicinal articles (New and Nonofficial Remedies, 1930, p. 477):

C. M. Sorensen Co., Inc.—Inhalant Pine Camphor and Eucalyptol (Sorensen).

The following products have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in New and Nonofficial Remedies:

Ampoules Emulsion Mesurol, Twenty Per Cent, One Cubic Centimeter.—A suspension of mesurol (New and Nonofficial Remedies, 1930, p. 100), in sesame oil, each cubic centimeter of which contains mesurol equivalent to from 0.103 to 0.117 gram of bismuth. Winthrop Chemical Co., Inc., New York.

Tablets Theocin, One and One-Half Grains.—Each tablet contains theocin (New and Nonofficial Remedies, 1930, p. 415), one and one-half grains. Winthrop Chemical Co., Inc., New York.

Ampoules Mercurochrome (H. W. & D.), One Per Cent, Ten Cubic Centimeters.—An aqueous one per cent solution of mercurochrome—220 soluble (New and Nonofficial Remedies, 1930, p. 271), stabilized with ammonium hydroxid; in ten cubic centimeter ampoules. G. D. Searle & Co., Inc., Chicago.

Ampoules Mercurochrome (H. W. & D.), One Per Cent, Twenty Cubic Centimeters.—An aqueous one per cent solution of mercurochrome—230 soluble (New and Nonofficial Remedies, 1930, p. 271), stabilized with ammonium hydroxid; in twenty cubic centimeter ampoules. G. D. Searle & Co., Inc., Chicago.—*Jour. A. M. A.*, August 2, 1930, p. 343.

Diphtheria Toxoid (Cutter).—Diphtheria Toxoid (Cutter) (New and Nonofficial Remedies, 1930, p. 485), is also marketed in packages of one forty-five cubic centimeters vial. Cutter Laboratory, Berkeley, California.

Synthetic Thyroxin.—It contains not less than 65 per cent of iodine. It has the actions and uses of thyroxin, United States Pharmacopeia (New and Nonofficial Remedies, 1930, p. 403). Synthetic thyroxin is supplied in the form of ampoules containing one and one-tenth cubic centimeters of solution containing one milligram, and in the form of a solution, each cubic centimeter containing two milligrams, and in tablets containing one milligram. Hoffman-La Roche, Inc., Nutley, New Jersey.—*Jour. A. M. A.*, August 16, 1930, p. 485.

Antimeningococic Serum.—Antimeningococic serum (New and Nonofficial Remedies, 1930, p. 350), marketed in packages of two fifteen cubic centimeters syringes with apparatus for intraspinal injection; in packages of one fifty cubic centimeters double-ended vial with apparatus for intraspinal injection. National Drug Co., Philadelphia.

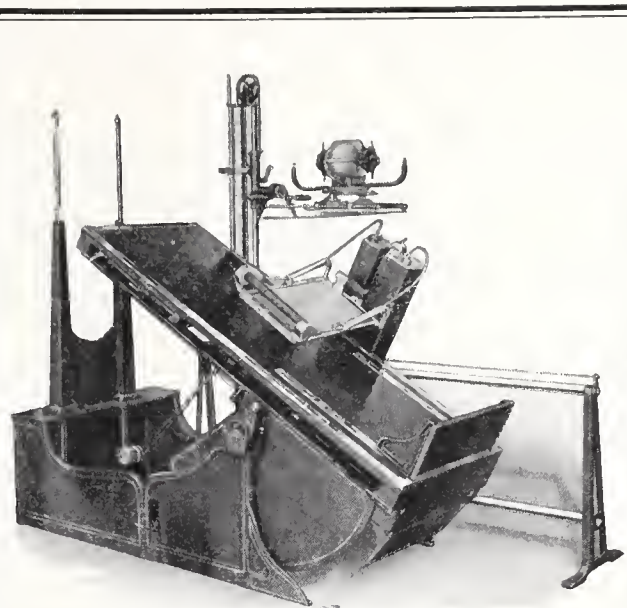
Mercurochrome Suppository (Aces).—Suppositories representing a two per cent solution of mercurochrome—220 soluble (New and Nonofficial Remedies, 1930, p. 271), in a slightly aromatized, hydroglycerogelatin base; each suppository weighs approximately 6.5 grams (100 grains). Aces Laboratory, Inc., Brooklyn, New York.—*Jour. A. M. A.*, August 23, 1930, p. 594.

White's Cod Liver Oil Concentrate.—A cod liver oil concentrate in the form of tablets (wafers), each containing not less than 250 vitamin A units and not less than 100 vitamin D units. White's cod liver oil concentrate possesses properties similar to those of cod liver oil so far as these depend on the fat-soluble vitamin content of the latter. White Laboratories, Inc., Gloucester, Mass.—*Jour. A. M. A.*, August 30, 1930, p. 663.

FOODS

The following products have been accepted by the Committee on Foods of the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in Accepted Foods:

(Continued on Page 17)



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Phenylazo-Alpha-Alpha-Diamino-Pyridine Hydrochloride
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In infections of the urinary tract

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Gonorrhea

Prostatitis

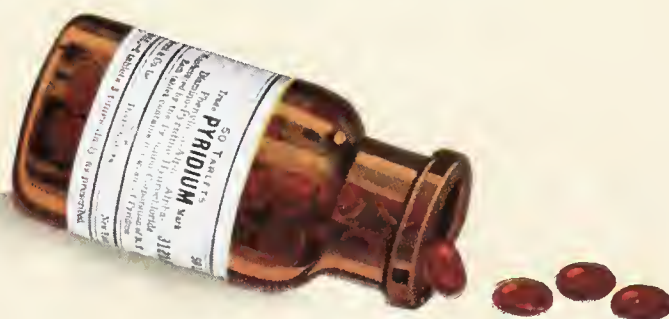
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*Pyridium may be administered orally
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TRUTH ABOUT MEDICINES

(Continued from Page 15)

Heinz Rice Flakes Prepared with Pure Rice Cellulose (H. J. Heinz Co., Pittsburgh).—A flaked rice containing added rice cellulose, yeast, salt, and milk sugar. Milled rice, rice cellulose (7 per cent of weight of rice), yeast (7 per cent), table salt (2.75 per cent), and milk sugar (0.5 per cent) are cooked, dried, flaked, toasted, cooled and packed. The product is a breakfast cereal containing indigestible cellulose that is claimed to be less irritant than wheat bran. It is proposed for use in an anticonstipative diet.

Ry-Krisp (Ralston Purina Co., St. Louis).—A whole rye grain wafer flavored with salt. Ry-Krisp may be used in cases of wheat allergy. The wafers encourage thorough chewing.

Merrell-Soule Powdered Skim Milk (The Borden Co., New York).—A standard, uniform, practically fat free, powdered skim milk. It contains fat 1.0 per cent, protein 36.5 per cent, lactose 51.8 per cent, mineral matter 7.9 per cent, moisture 2.5 per cent. The product is offered as a near approach to a fat-free milk.

Curtice Brothers' Certified Nursery Foods (Curtice Bros. Co., Rochester, New York).—Sieved spinach, carrots and tomato, and vegetable purée. The water content approximates that of the raw vegetables. These foods are stated by the manufacturer to be especially prepared for babies and young children. The manufacturer guarantees a declared minimum number of units of vitamins A, B, and C. This information is declared on the label of the cans.

Alp Rose Canned Foods (John Sexton & Co., Chicago).—These are canned fruits and vegetables, packed in water without added sugar or salt, and intended for use in restricted diets. The label declares the average composition for available carbohydrates, protein, and fat.

Van Camp's Puréed Fruits and Vegetables (Van Camp Packing Co., Indianapolis).—These include purées of peas, spinach, tomatoes, prunes, apricots, carrots with puréed tomatoes and beef broth, and mixed vegetables with beef broth. These foods are designed by the manufacturer to influence the greater use of certain vegetables of good nutritional value. They are intended to provide them in smooth diet form and are chosen for their vitamin values.—*Jour. A. M. A.*, August 16, 1930, p. 485.

Sun Wheat Biscuits (Canada Biscuit Co., Ltd., London, Ontario).—A wheat biscuit with unusual vitamin and calcium content.

Sunwheats (The Sawyer Biscuit Co., Chicago).—Sunwheats is the brand name for Sun Wheat Biscuits manufactured for distribution in the United States.

Horlick's Malted Milk (Horlick's Malted Milk Corporation, Racine, Wisconsin).—The product is a dried milk and extract of malted barley and wheat. Horlick's Malted Milk is claimed to be a nutritious food and when taken hot before retiring to be helpful for inducing sleep, and to be valuable in diets for undernourished, nervous patients, those afflicted with wasting diseases, invalids, and convalescents.

Horlick's Sweet Chocolate Flavor Malted Milk (Horlick's Malted Milk Corporation, Racine Wis.).—The product is Horlick's Malted Milk flavored with cocoa. Its composition is essentially that of Horlick's Malted Milk.

Grape-Nuts (General Foods Corporation, New York; Postum Co., Inc., Battle Creek, Mich.).—A breakfast cereal of whole wheat and malted barley. The manufacturer offers Grape-Nuts as an energy food providing proteins, the mineral elements of wheat and barley, and vitamin B.—*Jour. A. M. A.*, August 23, 1930, p. 595.

(Continued on Next Page)

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TRUTH ABOUT MEDICINES

(Continued from Preceding Page)

ACCEPTED DEVICES FOR PHYSICAL THERAPY

The following have been accepted by the Council on Physical Therapy of the American Medical Association for inclusion in its list of accepted devices for physical therapy:

Austin's Irrigators.—Austin's Irrigators (W. D. Peattie, Inc., Cleveland, Ohio), are designed for "dilating the sphincter muscles" and "for continuous irrigations," particularly in the "the use of extreme temperatures in (irrigating) liquids." It is claimed for the apparatus (1) that complete dilation and thorough cleansing is accomplished; (2) that the vaginal types permit long uninterrupted douching; (3) that the rectal types permit long uninterrupted irrigation; (4) that they are made of material which permits the use of irrigating liquids of high or low tempera-

ture; (5) that the apparatus may be taken apart and sterilized thoroughly; (6) that it is easily tolerated by the patient; (7) that any soluble antiseptic may be used; and (8) that the irrigators or tips can be made a part of any irrigating apparatus. The Council on Physical Therapy believes that these claims are reasonable and not unwarranted.—*Jour. A. M. A.*, August 2, 1930, p. 343.

Sorensen Therapeutic Inhaler No. 922.—The Sorensen Therapeutic Inhaler No. 922 (C. M. Sorensen Co., Inc., Long Island City, New York), is stated to be an electrical instrument giving warm, dry air for the vaporization of inhalants. The device is constructed to heat air in sufficient volume to permit of deep and continued breathing direct from the applicators, thus providing the mucosa with a continuous supply of warm air or of warm medicated vapor. It is designed to operate on a 100 to 125 volt alternating or direct

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current, and its power consumption is less than 15 watts.

Sorensen Therapeutic Heater No. 921.—The Sorensen Therapeutic Heater No. 921 (C. M. Sorensen Co., Inc., Long Island City, New York), is similar to the Sorensen Therapeutic Inhaler. It is different in that the cold air, instead of being drawn through a heating chamber, is forced through by some type of air compressor. It is claimed to be of value in the treatment of those diseases of the middle ear where the application of warm dry air, or warm medicated vapor, is indicated.—*Jour. A. M. A.*, August 9, 1930, p. 413.

Sunlit Ultraviolet Glass.—The window glass known as "Sunlit" (Semon Bache & Co., New York), is stated to be a glass that transmits the biologic ultraviolet rays of the sun. According to a test conducted by the Bureau of Standards this glass does transmit an appreciable percentage of the solar rays which have been shown to have antirachitic properties.—*Jour. A. M. A.*, August 16, 1930, p. 484.

PROPAGANDA FOR REFORM

Atrophy of the Liver Due to Cinchophen Preparations.—When cinchophen was introduced into therapeutics (reinforced by the trade name "Atophan"—the tophi remover) its striking effect on the elimination of uric acid captured the clinical imagination. It was soon seen, however, that Atophan belied its name, for the tophi refused to be removed. The drug was found, however, to be an effective analgesic. Various esters and derivatives were advertised extensively for the benefit of those who do not like the flavor of cinchophen and for the benefit of the manufacturers who could establish a monopoly on each little change. Cinchophen became a household remedy in the belief that it could do no harm. In 1923 evidence became available that the drug was causing fatal hepatitis. Since there are many other analgesics

(Continued on Next Page)



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TRUTH ABOUT MEDICINES

(Continued from Preceding Page)

about as effective as cinchophen in many cases, and without this insidious danger, the use of the drug should be avoided whenever possible. Unfortunately, this is not simple, for a physician may be easily led into prescribing cinchophen when he does not know it. He may avoid it under the official names of cinchophen and neocinchophen or the original, therapeutically misinforming names of Atophan and Novatophan, but can he be expected to keep in mind all the noninforming names which manufacturers invent? This illustrates the importance of the rule of the Council on Pharmacy and Chemistry which permits not more than one trade name—that applied by the discoverer. The rule protects those that use New and Nonofficial Remedies, but can do little for others. The case is even worse for the patent medicines that are advertised to the public. While physicians, now that they have been warned, will restrict the use of cinchophen and watch for the first signs of danger, cinchophen preparations may be sold to the public in mixtures of secret composition.—*Jour. A. M. A.*, August 2, 1930, p. 345.

Synthetic Thyroxine.—The American Medical Association Chemical Laboratory recalls that Kendall isolated thyroxine from the thyroid gland and that he considered it to have a constitution which later was found to require revision and that in the United States Pharmacopeia thyroxine is defined as an active principal obtained from the thyroid gland. Attention is called to the fact that while spelled in the Pharmacopeia without a final "e" the substance is basic in character and must be spelled thyroxine. Three years ago, Harington and his co-workers arrived at the conclusion that the Kendall formula was not correct. Later this conclusion was confirmed by the preparation of thyroxine synthetically. Synthetic thyroxine

has been prepared by pharmaceutical laboratories abroad and one brand, Synthetic Thyroxine—Roche, has been submitted to the Council on Pharmacy and Chemistry. The Laboratory found this brand to comply with the standards which it had elaborated and the Council admitted this product to New and Nonofficial Remedies for the reason that the pharmacopeial definition does not apply to the synthetic substance.—*Jour. A. M. A.*, August 16, 1930, p. 484.

Sulphocol and Sulphocol Sol Not Acceptable for New and Nonofficial Remedies.—The Council on Pharmacy and Chemistry reports that Sulphocol is the proprietary name applied by the American Chemical Laboratories to a product claimed to be colloidal sulphur, containing 20 to 25 per cent of elemental sulphur, and that Sulphocol Sol is stated to be a 10 per cent solution of Sulphocol. The Council found Sulphocol unacceptable for New and Nonofficial Remedies because the therapeutic claims are unwarranted, because its composition was not in accord with the claims made, and because the evidence does not show that the product is of sufficient originality to permit the recognition of a proprietary name. In publishing its report of rejection, the Council explains that the American Chemical Laboratories have revised its claim of composition in accordance with the findings of the American Medical Association Chemical Laboratory and offered to delete one of the therapeutic claims objected to, but offered no evidence which permitted a revision of the Council's report in other respects.—*Jour. A. M. A.*, August 23, 1930, p. 594.

The Rector Company Declared a Fraud.—The Rector Company, A. J. Major, president, and the J-L Manufacturing Company, Alexander City, Missouri, were called on by the postal authorities last April to show cause why a fraud order should not be issued against them. According to the solicitor for

(Continued on Page 22)

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"Mead's Infant Diet Materials are advertised only to physicians. No feeding directions accompany trade packages. Information in regard to feeding is supplied to the mother by written instructions from her doctor who changes the feedings from time to time to meet the nutritional requirements of the growing infant. Literature is furnished only to physicians."

Every physician would do well to bear in mind that in this commercial age, here is one firm that instead of exploiting the medical profession, lends its powerful influence to promote the best interests of the medical profession it so ably serves.

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ACIDOSIS—An intoxication with Acid toxins and a corresponding lessening of the Alkaline Reserve (RpH), is present in nearly all acute and chronic diseases.

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AT ALL DRUGGISTS

TRUTH ABOUT MEDICINES

(Continued from Page 20)

the Post Office Department, the Rector Company's business consists in selling through the mails a preparation claimed to cure pyorrhea, including a liquid called "Pyro-Kil" (formerly called "Pyro-Nox") said to be composed of compound solution of cresol, (United States Pharmacopeia) glycerin and water, flavored with oils of clove and wintergreen. The evidence considered by the solicitor brought out that the product, Pyro-Kil, was manufactured and sold to the trade by the J-L Manufacturing Company, while the mail-order part of the business was carried on under the trade name of the Rector Company, both operating from the same address. The Postmaster-General notified the local postmasters to stamp all mail that came addressed to the Rector Company, A. J. Major, President, and the J-L Manufacturing Company, fraudulent, and return it wherever possible to the senders.—*Jour. A. M. A.*, August 23, 1930, p. 612.

The Vreelands Quackery Again.—Recently the *Journal of the American Medical Association* published an article "The Vreelands Quackery" regarding a fraudulent grow-hair-quick concern run by one Clayt Vreeland of Cleveland, Ohio. In this article it was brought out that among the testimonials used was one from a physician, Dr. C. J. Cannon. Doctor Cannon believes that the reference to his testimonial did him an injustice because it was used without his consent. The fact remains that he gave the testimonial and further that he should have been aware of its use. In 1928 a layman wrote to Doctor Cannon stating that he had read the data received from Vreeland and saw his letter there. The layman asked for the reasons why he considered the preparation good and Doctor Cannon replied that he considered the people honest and reliable and suggested that he

call at their office for examination and advice.—*Jour. A. M. A.*, August 23, 1930, p. 613.

The Testimonial Industry.—Two or three years ago certain members of the medical profession were asked to answer a question that they were wholly incompetent to answer. The question was whether, in their judgment, the "toasting" process alleged to be applied to the tobacco in "Lucky Strike Cigarettes" was likely to free the cigarets from irritation to the throat. In addition to the questionnaire, the doctors received a carton of one hundred cigarettes. The Lucky Strike people now claim that over eighteen thousand physicians answered the question given in the affirmative. Today physicians in the South and possibly other sections of the country are being circularized by the concern which exploits "Ironized Yeast." "Ironized Yeast" belongs to the get-plump-quick class of nostrums. It is a mixture of yeast and iron. It also contains phenolphthalein. The circular letter that the Ironized Yeast Company is sending out to physicians starts out with this rather crude offer: "A gift worth \$10 for you for just a little information." The physicians are then asked to answer two questions, the answers evidently to be used in the exploitation of Ironized Yeast. For the answers written on his own stationery, the physician is offered "a luxurious flaçon of exquisite French perfume—Tout Paris de Guimet, regularly sold at \$10." Will the medical profession bite?—*Jour. A. M. A.*, August 30, 1930, p. 679.

More Misbranded Nostrums.—The following products have been the subject of prosecution by the Food, Drug, and Insecticide Administration of the United States Department of Agriculture which enforces the Federal Food and Drugs Act: Knoxa Cold Tablets (L. J. Barnet Company), consisting essentially of acetanilid, quinin salt, with some powdered crude drugs, including a laxative, resins, traces of aloin, red pepper, and some nuydriatic alkaloids. Nuremedy (The Central Laboratories, Inc.), each tablet

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containing 1.4 grains of phenacetin and nearly $2\frac{1}{2}$ grains of aspirin. Bu-Ku-Jin Elixir (The Tonkin Distributing Company), consisting essentially of alcohol, sugar, and water, with traces of flavoring oils and some plant drug extractives, including buchu. R. P. Liniment (The Alveo Chemical Company, Inc.), consisting essentially of volatile oil (97 per cent), including oil of pine. Nue-Ovo (Research Laboratories, Inc.), consisting of a dark brown watery solution of extracts of plant drugs including a laxative drug, a bitter drug, resin, saponin, and caffeine, colored with caramel and preserved with sodium benzoate. Pneumatica (The Charles F. Polk Company), consisting essentially of petrolatum including red pepper, oil of wintergreen, carbolic acid, camphor, and some mydriatic alkaloids. Hi-Grade Kold Breakers (The Continental Drug Company), containing essentially one grain of acetanilid to each tablet, red pepper, extracts of laxative plant drugs including podophyllin, a small amount of iron salts and sulphates.—*Jour. A. M. A.*, August 30, 1930, p. 680.

Rabies a Very Real Danger.—The tragic death from rabies on August 27 of a little girl in Brooklyn, who was bitten on the face by a stray dog a month previously, calls renewed attention to the menace of rabies in this city. Each year many thousands of persons in this city are bitten by dogs, and whenever possible an effort is made to secure the offending animal for observation, or, in case the animal has been destroyed, to make the necessary laboratory examination to determine the presence of rabies infection.

Dog Bites and Rabies, New York City, 1926-1930

	1926	1927	1928	1929	1930*
Dog bites reported.....	8608	11,490	11,783	12,279	6130
Dogs found rabid.....	463	465	255	157	56
Human deaths of rabies	1	6	2	2	0†

* To August 1.

† One death August 27.

(Continued on Page 27)

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1/2 cup cold water					
1 1/2 cups boiling water					
1/4 cup lemon juice or 1 1/2 teaspoons citric acid	40			4	
Grated rind of one lemon . . . . .	....	....	....	....	....
1 1/2 grains saccharin . . . . .	....	....	....	....	....
6 sections orange	75	1	....	9	....
6 sections grapefruit	90	.5	....	9	....
Total	7.5	....	22	118	
One serving	1	....	4	20	

Soak gelatine in cold water five minutes. Boil water and rind for two minutes. Add to gelatine and stir until dissolved. Add lemon flavoring and saccharin, strain and chill. Cut each section of fruit into three pieces. When jelly is nearly set, stir in cut fruit, mold, chill until firm and serve plain, with thin cream or whipped cream.

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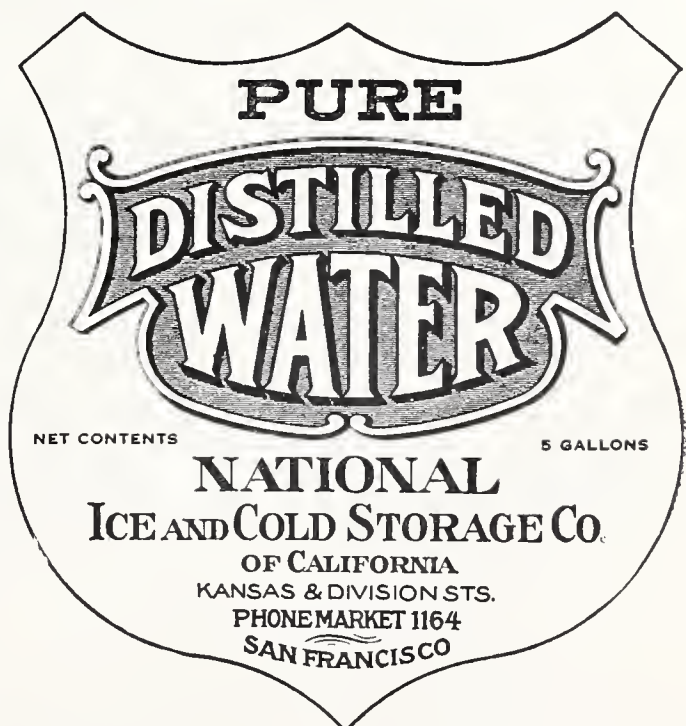
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(Continued from Page 23)

As may be seen from the following table, the number of animals thus found to have rabies is considerable, though fortunately the last few years indicate some reduction from the high figures four and five years ago.

In the fatal case referred to above, the wound was not cauterized with nitric acid and, despite urging by the health department, the child was not given anti-rabic immunization. In the opinion of those best qualified, prompt cauterization of all bites with fuming nitric acid is even more important than immunization. Following an autopsy by the medical examiner, the brain of the little victim was examined at the health department laboratory. This confirmed the diagnosis of rabies.—*City of New York Department of Health Weekly Bulletin.*

Child-Health Plans for Porto Rico.—The present distressing economic and health conditions of Porto Rico, which were called to President Hoover's attention by Governor Theodore Roosevelt, lend especial interest to reports of three separate investigations of that island's problems—by the Brookings Institution of Washington, the American Child Health Association, and Professor H. C. Sherman of Columbia University. The study by the American Child Health Association was undertaken at the request of President Hoover. It discovered a vicious circle of disease producing poverty and poverty producing disease. Its report recommends the division of the island into twenty sanitary districts under the insular department of health, each with a full-time trained health unit; drainage of selected government lands for settlement and cultivation to reduce congestion of population and eliminate malaria-breeding areas; and



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the hospitalization of all open infectious cases of tuberculosis. A child-health committee has already been organized and is formulating plans under the chairmanship of Doctor Crumbine, executive director of the American Child Health Association.

Doctor Sherman, whose report of his field study of the island's food and nutrition conditions appeared in the July number of the *Journal of Home Economics*, considers that adequate feeding of the children is of as great importance as campaigns against hookworm, malaria, and tuberculosis. "We cannot be satisfied," he says, "that schools under the American flag should be largely attended by children who are half-starved through no fault of their own or of their parents."

"Porto Rico and Its Problems," published by the Brookings Institution is the report of an earlier study

undertaken in 1928 to discover the possibilities of more effective utilization of the island's material and human resources. It contains detailed recommendations for action by the federal and insular governments and by local agencies.—*United States Department of Labor, Children's Bureau, Washington.*

These Mothers Know How to Coöperate.—A group of mothers at Chapel Hill, North Carolina, have pooled play equipment on a joint playground, which they take turns in supervising. A slide, swings, sand boxes, and other play apparatus keep the children happy from 9 to 12 a. m. The mothers also hold evening meetings to discuss problems of child care and management.—*United States Department of Labor, Children's Bureau.*



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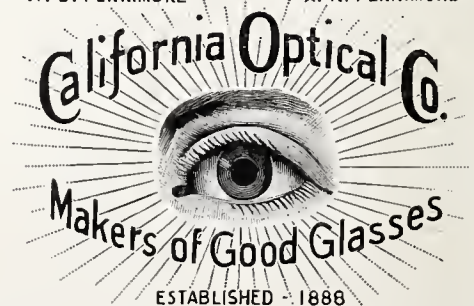
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CALIFORNIA AND WESTERN MEDICINE

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OCTOBER, 1930

No. 4

DERMATOLOGIC EXPRESSIONS OF INTERNAL MEDICAL DISEASES*

By FRED D. WEIDMAN, M. D.
Philadelphia, Pa.

THIS subject is one of the most popular we have in dermatology; so much so that to those who follow the literature it has almost become hackneyed. It is therefore rather "by request" that I submit, in my turn, a version which I feel is adapted to this audience. I dare say that there is scarcely a dermatologist who has been called upon for an address who has not at some time or other at least been moved to select and labor upon it. Even Sir Humphrey Rolleston has testified to its dignity by choosing it for one of his major appearances before the medical public; the following yet further certify, (and the list might be easily extended): "The Skin in Diagnosis of Internal Disease," by A. Viton,¹ "The Skin as an Index to Health," by Scholtz,² "Relation of the Skin to the Whole Organism," by B. Bloch,³ and "Hyperemias of the Skin Associated with Internal Conditions," by A. Strauss.⁴ In any event, no dermatologist could ever proceed very far in acquiring his dermatology without at least musings thusward. Indeed this phase of dermatology becomes more jealously cherished day by day by the entire dermatologic specialty. No longer are skin diseases "all on the surface"; or as others would have it, "There are two kinds of skin diseases, one cured by zinc oxid and the other by sulphur." "They never die, and they never get well," is another animal of the same genus.

I must confess that when I first entered a narrow specialty like dermatology from a ten years' experience as a free rover in the department of pathology of our medical school, I, too, would have been satisfied to allow such impressions to go unchallenged. That was because I was quite unacquainted with the meaning of the refinements which had been attained in dermatological diagnosis. I was quite aware of my own ability to appraise the general order of tissue process that was concerned in a skin change observed by me on the autopsy table or under the microscope. Assisted by associated clinical findings I could make an approach to the dermatologic diagnosis provided it was confined to tuberculosis, syphilis or such specific diseases, but of

the advantages to be secured from peculiarities in distribution of the lesions, clinical course, the various permutations and combinations of vascular, pigmentary, scaling and other changes which can speak so eloquently to the dermatologist of this or that entity, I knew nothing. I must confess, too, that I had a certain sense of diffidence at the diagnostic possibilities in dermatology. Then, little by little, my dermatologic preceptors began to demonstrate the art that there is in identifying now an overtreated dermatitis, next a drug dermatitis, and then a feigned eruption; or, as my preceptor, Doctor Hartzel, once did, point out a tuberculous peritonitis to the internist on the basis of a coin-sized patch of lupus vulgaris located most atypically over the sacrum. With this combination of circumstances behind me, I feel that I can speak to you today as much in a judicial capacity as in that of the attorney submitting his brief.

Of course, all of us realize that it is entirely foreign to simple commonsense that the skin should be an outlaw and be exempt from influences which are verily constrained to bear upon it as conducted through such avenues as the omnipresent blood and lymph, and the nerves; after that it becomes a matter of the *extent* to which changes occur and the location and form which they take. Indeed it cannot fail but that there should be flaunted at us the cutaneous earmarks of a certain proportion of internal disturbances. One writer has designated the skin as the mirror of the interior, which while not quite apt, at least brings the point home in a picturesque manner; and the great constitutionalist, Pende,⁵ has put it, "The skin is like the individual's visiting card, serving as an index of his humoral state and nutritive balance."

In an exposition of this subject there are several orders of procedure which might be followed. Procedure number one would be to didactically relate the detailed cutaneous changes possible in each of given specific abnormal internal states; number two, conversely, to submit a catalogue of dermatologic states which would lead to internal diagnosis. Procedure number three would evolve from the viewpoint of the pathologist, indicating the *mechanism* by which abnormalities of the interior would be transmitted to the skin, and thereafter the order of tissue changes that are theoretically and actually induced. Any one of these, or in a monograph all, would be in order; but the circumstances of today must play a modifying part.

* From the Laboratory of Dermatological Research, University of Pennsylvania.

* Read before the general meeting of the California Medical Association at the fifty-ninth annual session, Del Monte, April 28 to May 1, 1930.

Under such circumstances, the first mode is quite out of order; it would amount to a treatise, disconnected and incomplete, on dermatology; Barker⁶ may be depended on in part for this. After that, with sufficient time, it would be delightful to first fully outline the general principles of pathogenesis as indicated in procedure number three and then pass to procedure number two, a phase which would yield us most in the way of immediate practical value. But finally, under stress of circumstances, I have decided not to attempt to cover the whole field, but simply to select a few of the less well known or less obvious correlations between viscera and skin. That is, I shall not attempt to catalogue all of the dermatologic expressions of internal disease, nor on the other hand, will I try to exhaust all of the angles, symptomatic, pathologic, and whatnot of any given dermatosis. Such a catalogue I have made, however, have shopped through it and selected a few dermatoses which will serve first as illustrations of the pathologic processes which lead to dermatoses, and/or secondly, which will illuminate internal medical diagnosis.

In other words, I would adopt the policy of service from the dermatologic field, getting as much to you as possible in the time available, at the same time aiming to avoid the platitudes rampant today and particularly including such items of information as are not calculated to have reached the general medical public and may not be generally known to the dermatologist. I will try to illustrate processes to some extent but will give preference to materials with practical points. Under this policy, of course, such disorders as jaundice, the exanthemata, urticaria, edema, and so forth, are at once excluded.

Likewise, the reverse relation, that is, affections primary in the skin which have an effect on the viscera, will be omitted, inasmuch as this is a subject sufficiently large of itself and worthy of presentation in a separate treatise. I have only to mention the effects of severe sunburning, albuminuria and eosinophilia in scabies, visceral metastasis in sporotrichosis and blastomycosis, to indicate what I mean, and as newer developments the mechanism of ultra-violet radiation of the skin in deficiency diseases and the rôle of the skin as an immune organ. Indeed, the term esophylaxis was coined over ten years ago to cover just this concept (Hoffman⁷); and Louis Tuft,⁸ has just read a paper before the American Association of Immunologists entitled, "The Skin as an Immunological Organ; with Particular Reference to Antibody Production."

Teaching.—At the University of Pennsylvania the importance of this viscerocutaneous rapprochement was recognized by Doctor Stengel and his associates five years ago, and an undergraduate course was instituted to cover. In it, patients are selected, from wherenot in the hospital, who have obvious dermatoses and at the same time definite internal disease. A member of the medical staff and myself then sit in conference before a ward class of eighteen to twenty students. Depending

upon whether the patient had presented himself primarily for the internal or the external state, the internist or myself make the opening presentation. Each develops the case just short of the other's province and is succeeded in turn by the other. When all of the evidence is in, each of us summarizes. In a large hospital like the Philadelphia General there is never any lack of material. To cover the situation exhaustively and bring out all of the sidelights never more than two patients are employed during the hour.

Scope.—The following tabulation roughly indicates the path which our conference today could follow, and the extent to which I have shortened it in this paper.

INTERNAL DISEASE STATES; CONNECTION WITH SKIN*

A. Congenital.

Involving nevi, heredity, constitutionalism (pro parte).

B. Blood Borne.

1. Normal substances.

Quantitative and qualitative abnormalities.

Anemia, congestion, edema.

2. Abnormal substances. Particulate. Toxic. Hormones.

C. Lymph. Theoretically as preceding but much less efficient and important.

D. Nerves.

Vegetative nervous system.

Neurasthenic states.

Zoster.

E. The Reticulo-endothelial ramifications. (Including fibrous tissue.)

We now finally pass to the consideration of some of the different diseases contained in the above groups.

CONGENITAL EXPRESSIONS

Disturbances of mentality are known in connection with adenoma sebaceum and von Recklinghausen's disease. In addition, a nodular sclerosis of the brain has been known to occur in the former. I have studied an extensive pigimentary and papilliferous nevus of the entire body of a little girl, dying with convulsive symptoms in which, at necropsy, there was likewise an extensive diffuse nevic infiltration of the entire cerebrospinal meninges. Studies of the spinal fluid for pigment, and of this fluid and the urine for melanogen are now quite in order in all cases of such extensive melanotic nevi, at least where neurologic symptoms supervene. In Kaposi's sarcoma, the tumors of the skin and intestines did not stand in any metastatic relationship to each other as I saw them at autopsy. If not nevic, there was some general constitutional factor

* This tabulation is only suggestive for the limited purposes of my particular materials. For comprehensive and scholarly exposition see Highman, Walter J., *Dermatology; the Essentials of Cutaneous Medicine*, p. 12. Macmillan.

determining the liability of these two positions to the same affection. I have likewise been led into the discovery (when specifically searched for) of cutaneous hemangiomas in a little girl⁹ through a surgeon who had resected the intestine on account of intussusception which was secondary to intestinal hemangiomas.

We can only understand these distant positions of one and the same disorder, both or at least one of the members being obviously congenital, by letting our thoughts go back far into the story of embryology when cutaneous cells had not as yet become completely differentiated or at least separated from associated cells destined for other, perhaps remote, body parts.

BLOOD BORNE

Syphilis.—This is such an obvious and tangible instance of dermato-visceral interrelationship that it need not be elaborated. In this conference, let me only prevent you from going too far and assuming that the diagnosis of syphiloderms is always a ready one. Some, it is true, are so characteristic that the veriest novice can diagnose them on sight; in a second class, the good general practitioner has no difficulty when he is favored by additional associated syphilologic symptoms. There is, however, a third class, which supplies lesions which to the skilled dermatologist are diagnosable on sight but which the general practitioner cannot be expected to differentially diagnose from the similar appearing lesions of tuberculosis, bromid and iodid granulomas, blastomycosis, and so forth, because he is not in the game every day. The pictures I am showing on this screen are of the kind that are delights to the dermatologist because he can say promptly, "This is syphilis and nothing else." Of course, there is a fourth category of syphilitic lesions utterly undiagnosable as such because they lack all syphilitic characteristics. Even syphilitic urticarias have been claimed.

Tuberculosis.—The same considerations hold here as in syphilis. When the tuberculids are included, probably as many cases of skin tuberculosis are primarily internal as are external. Skin tuberculosis is equally as protean as syphilis; therefore, it would be impossible for me to enumerate all of the different clinical forms and explain the details of pathology. It suffices to say that many of the less conspicuous effects of internal tuberculosis (such as lichen scrofulosorum) as expressed upon the skin are as readily diagnosable as tuberculosis by the dermatologist and may lead to diagnosis of the internal state.

The Tuberculids.—Among the effects just mentioned are the tuberculids. By these we refer to effects of metastatic vitiated or dead tubercle bacilli or tuberculous products, modified by peculiarities of cutaneous allergy which are insufficient to elicit the classical lupus vulgaris. After that, there is a wide range of changes possible extending from a simple cyanosis of the hands (lupus

pernio) through tiny papules (lichen scrofulosorum) up to lepra-like infiltrations (sarcoids). The story is a most complicated one but nevertheless rather readily solved by the expert dermatologist.

We are coming to believe that fungi may behave in a similar way, producing dermatophytids, but much remains to be done before the full scope is settled.

Metabolic Disease.—Gouty nodules, the furunculosis and gangrene of diabetes, together with its pruritus, I will barely mention. I promised to omit such dermatoses as ones with which the general practitioner is already only too familiar.

In carotinemia²⁶ the rôle of carotinoids is established. Every internist by now invokes the difference in scleral color changes in differential diagnosis from jaundice. Why it is that only some persons are liable is unsettled, whether on account of peculiarity of kidney threshold or inherent individualistic affinity on the part of the tissues, the basic explanation would remain a metabolic one.

Xanthoma is a spectacular fat dyscrasia; we know now that other fats¹⁰ than cholesterol are concerned. A patient of mine has just died who had shown a normal cholesterol figure for four months before death, yet his xanthomas were still present. Cholesterol could not be demonstrated in his lesions, and in pulmonary fluid the fats were neutral, to the complete exclusion of cholesterol. Incidentally, the fat content of this pulmonary fluid measured 20 per cent of the entire sample. Xanthomas are in effect simply local deposits of fats and lipoids discharged from a surcharged blood stream.

Christian's disease¹¹ likewise may exhibit cutaneous xanthomas; as already known, this hypercholesterolemic disease of children is a clear-cut complex by reason of its diabetes insipidus, jaundice and exophthalmos. In our case¹² the xan-



Fig. 1.—Xanthoma. There were extensive skin lesions and in addition osseous and visceral expressions. Photomicrograph shows cholesterol deposit in granuloma of skull of child (Christian's disease).



Fig. 2.—Rheumatic nodules. (The erythema elevatum diutinum of the dermatologist.)

thomas were found in skull, lungs, liver, spleen, pituitary and pineal.

The last two cases of xanthoma I saw at autopsy showed cancer, one at the papilla of Vater and the other a large colloid one of the pylorus. These are unique observations and are to be reported in full.

Pellagra.—There is the persistent note of "alimentation" in this. Last year Smithies¹³ included a pellagroid dermatosis in his series in the paper that he read at Portland in connection with biliary tract disease. Several reported cases of alimentary obstruction¹⁴ have also been associated with pellagra. In the shower of pseudopellagra¹⁵ which has descended upon our municipal hospitals, alcoholism is almost invariably elicited in the history. In the cases so commonly originating in insane asylums hallucinations are calculated to be present, extending to the dietary and at once introducing possibilities of monotony which in the end means malassimilation. Even if we were to accept at face value the infectious theory of pellagra, including the yeast ideas, we could still understand how malassimilation would remain in the picture. It is my personal opinion that certainly in pseudopellagra, in the sense of Klauder and Winkelman, it is the dietary which, if not at the basis of the affection, is a prime factor.

Intercurrent Disease.—The rôle which intercurrent diseases have in modifying the course of a dermatosis finds place under this heading. We have known for long that an attack of erysipelas has been followed by improvement in sarcoma (Coley's fluid), that psoriasis has cleared up during typhoid fever and pregnancy, and that ringworm of the scalp has almost disappeared during typhoid fever, only to reappear on recovery. Veiel¹⁶ reports that acute myelitis was favorably influenced by an intercurrent attack of measles. Today we have biologic treatment of syphilis. Other citations could be added. In the final analysis, all these varying toxins may be regarded as analogues of those of the present-day foreign protein therapy—profound upsets of metabolism.

Endogenous Toxines.—Here we come upon a most subtle, evasive and indefinite field. Including as it does the complex considerations of urticaria, which are so thoroughly discussed in general medical literature, I shall barely give a skeleton of the ramifications of the rôle of endogenous toxins and perhaps bring out some of the less commonly known points.

In respect to urticaria let me only point out that its entire pathologic background has its parallel in several other dermatoses; from this it follows that if urticaria is to give you concern as a diagnostic lead, so must also the other members of the list, to wit: the angioneurotic edema and toxic erythema with which you are already thoroughly familiar; the erythema multiforme which Osler dwelt upon years and years ago, and which, in turn, has a tremendously wide range of dermatologic expressions; indeed, there are transitions into some of the purpuras, particularly the annular ones. Finally, some eczemas belong in the list.

From the practical standpoint, calcium occupies the stage just at present; but if the subject matter in the recent editorial in the *Journal of the American Medical Association*¹⁷ is properly based, it is doomed therapeutically. Strauss (loc. cit.) states that "the intravenous injection of benzoate or cyanid of mercury not only shortens the duration of erythema multiforme but alleviates its itching almost immediately."¹⁸

Some of the drug eruptions appear in the form of an erythema multiforme—particularly the ones due to coal tars. Luminal has forced itself upon the scene, and phenol phthalein has clear-cut diagnostic earmarks, particularly because of its persisting character which is contrary to the rule for most other drug eruptions.



Fig. 3.—Lethargic encephalitis. Seborrheic dermatitis of chest in addition to the already described oily seborrhea of face.

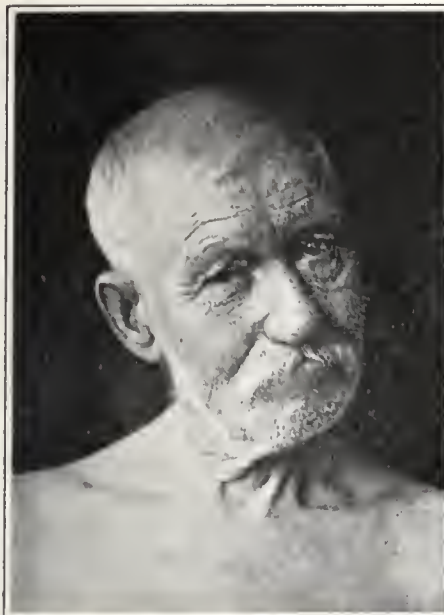


Fig. 4.—Fixed wrinkles of forehead in senility, due to elastic degeneration of the skin. (Senile elastosis.)



Fig. 5.—Wrinkled neck (turtle skin effect) in senile elastosis. Same patient as in Fig. 4.

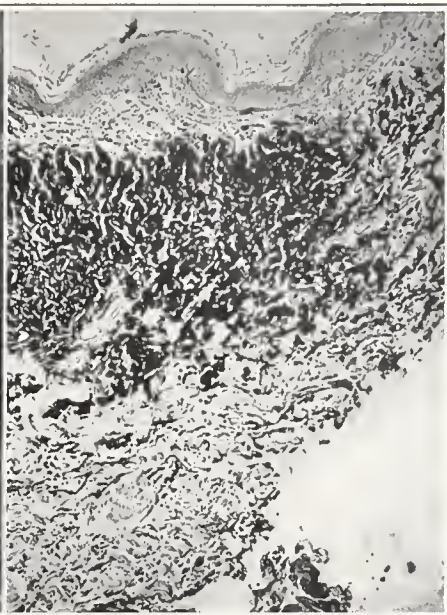


Fig. 6.—Histologic section from patient in Figs. 4 and 5; the degenerated elastic tissue stains black by this technique.

Focal Infection.—With this subject run rampant we proceed very cautiously. Its rôle in the toxic dermatoses, urticaria, erythema multiforme, etc., must be considered as established. It likewise occurs in erythema nodosum, rheumatic nodules (even independent of arthritis) (Clawson).²⁷ In a recent paper¹⁹ I have indicated how varied the cutaneous expressions may be in rheumatism, including such dermatological forms as erythema elevatum diutinum, panniculitis, fibrositis, and others. Perhaps lupus erythematosus also belongs upon the list. We find a roentgenologist²⁰ reporting upon the diagnosis of chronic pancreatitis and the bearing which it has upon common skin diseases.

Rosacea.—This is nothing more nor less than a persistent erythema with a special distribution upon the face. Such an erythema is induced, probably, reflexly; therefore, it is but natural to understand that the afferent paths of the reflex concerned may be various, leading either to near or distant parts. It is believed, but simply on the basis of clinical deduction, that conditions near by (oral irritants like spiced foods, hot beverages, alcohol, as well as disturbances in the nose like spurs, polyps, enlarged turbinates, and so forth) are partly responsible, but the important ones to you comprise a list: gastric disturbances (hypochlorhydria²¹), disturbances in the female pelvis (pus tubes, displacements), prostatic disease, and other focal infective states. To the dermatologist, therefore, rosacea is always also a problem in internal medical diagnosis.

Endocrines.—Myxedema need but be mentioned. The tendency to hirsuties seen in old age is familiar to everybody as well as its occurrence after ovariectomy and in hypervirilism. Alopecia sometimes has a connection with the thyroid, and the administration of the latter thera-

peutically is occasionally followed by benefit. Pituitary disease is sometimes responsible for hypertrichosis.

The vitamins, of course, are exemplified in scurvy, and the recent communication of Cowgill, Stucky and Rose²² in which ulcers developed upon the feet of experimental dogs in connection with deficiency of the vitamin B complex adds yet more to the situation.

Some Neurological Aspects.—In standard dermatologic texts such conditions as glossy skin and atrophy are routinely listed. In relation to zoster, I have only to add that carbon monoxide has been added to the list of substances capable of inducing the neuritis. Pendergrass²³ has recently reported zoster succeeding roentgen therapy in Hodgkin's disease. Anemic zones have been described upon the skin by Wernoe²⁴ to which he ascribes viscerocutaneous significance.

In lethargic encephalitis, seborrhea and hyperidrosis have long been known. Recently I made a survey of thirty cases²⁵ of post lethargic encephalitis and found that 33 1/3 per cent had a definite seborrheic dermatitis. This I feel should be added to the symptom complex.

It is only natural that some of the more or less psychotic outcomes of modern strenuousness should be expressed in the stock reaction of the skin, that is, eczema. It is only too easy, however, to overplay such an ubiquitous factor and neglect the real ones. We must be careful.

The Senile Skin.—This is prone to atrophy, the development of pigmentations (so-called liver-spots), small pedunculated fibromas, the minute bright red harmless capillary hemangiomas, or telangiectasias, and moles. The keratoses of the face and the back of the hands, which are so liable to carcinomatous degeneration, are likewise well known.

I have recently noted a tendency to fatty degeneration of the corium in various elderly individuals dying of cancer, tuberculosis, apoplexy, and such dissimilar states in which I felt that the change could only be attributed to some common factor in all, such as senility. It appears in the form of a diffuse creamy-yellow thickening of the skin of the forehead and side of the neck. The furrows are deepened, and on the neck a turtle-skin effect may result.

Constitutionalism.—It is trite to say that different people have different kinds of skin. Mothers will complain that their children have harsh skins, other families notoriously hairy, some individuals have greasy skins, and so forth and so on. Of course, there is something back of this, indeed, doubtless the most important elements of constitutionalism are quite apart from simple matters of greasiness, hairiness and so forth.

Indeed, years ago, Brocq introduced his "mixed dermatosis" concept which was to the effect that the typical expressions of a given dermatosis tend to become modified as they occur upon skins with particular constitutional tendencies. The best example of this is where dry, scaly dermatoses like psoriasis appear in seborrheic subjects; here the dryness becomes modified and we get the well known "seborrheic psoriasis" of the dermatologist, which now, furthermore, comes to involve an entirely different distribution from that of typical psoriasis.

I have long felt that the skin is autonomous in a way long unsuspected in medicine. Phylogenetically it is different; the outstanding protective organ of the body, it has been subjected to stresses and traumatism, parasitism, extremes of temperature, drying, and so forth, as no other. If we believe in adaptation it is not at all difficult to predicate special immunologic properties for it under these circumstances. Doubtless it is differences both of degree and kind in these properties which are responsible for different levels of reaction and consequently the different morphological expressions of one and the same disease on the skin. Given, for instance, an organ like the kidney, which for centuries had been accustomed to a regular and uniform environment and which, drawing thus upon uniform supplies and circumstances, had become limited to a uniform type of reaction against this or that stimulus, we would expect it to acquire reactive habits only up to a certain level. On the other hand, an organ which now had sensed itself during the dry, cold rigors of winter, or again during the moist, warm ones of summer, or yet again, under the influence of persistent parasitic disease, we view as one having had a more extended experience (it is a citizen of the world), and that, correspondingly, it had developed a larger capacity for adaptability. Expressed in another way, the range of the swings has a greater amplitude for a given stimulus than in other organs.

Without going too far, this theory is supported by some of our allergic tests; the marked advantage of intradermic practices as against subcutaneous; the fact, for instance, that the allergic state cannot be induced in guinea pigs by injections of trichophytin, intracardially or intravenously, but only intracutaneously.

The final point that I am leading up to is this. The skin is a much neglected organ in many ways medically, and it is encouraging to see that it is receiving attention as an outstanding immunologic organ; but let us go farther. Let us view the immunological phases as but part of the whole, under the general heading of constitutionalism. Let us divest the latter term of its more medieval significance and think of it in the modern light with which Pende (loc. cit.) has illuminated it. Let us experiment upon it with various irritants as Bloch has and plot out and analyze the different ways it reacts to standardized irritants, or other agents. Fortunately, we are peculiarly situated in that we can directly observe many of the effects. With impressions in re constitutionalism once determined in this situation of optimum favorableness,²⁸ we can reason by analogy toward the internal organs.

In short, of single organs the skin is one of the most promising, if not the most promising, avenues in the approach to outstanding medical problems of today.

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ANATOMY ACTS OF CALIFORNIA*

A SURVEY OF FORMER AND PRESENT LAWS

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ANATOMY legislation in California in the past differed only in details from that elsewhere. This was probably due to the fact that it was based on that of other states, and that social conditions here were similar to those elsewhere at the time the various laws were enacted. In California, as elsewhere, for a considerable time before the dissection of the human dead was legalized, medical schools existed and human bodies were used for the instruction of students.

Cooper Medical College was founded in 1858 and Toland in 1863, but the first anatomy act was not passed until 1870. Before that time the necessary bodies must have been obtained in a manner familiar to all acquainted with the history of anatomy or of medicine, for it had been made the

duty of someone to bury all the dead not claimed by relatives or friends, and disinterment for purposes of dissection was expressly forbidden.

Rules of Ancient Town Council of Edinburgh.

It is regrettable that our American commonwealths did not follow the good example of the Town Council of Edinburgh who, when granting a charter to the Incorporated Surgeons and Barbers, provided "that every intrant should 'knew anatomie nature and complexioun of every member in manis bodie,' for which purpose we (the surgeons) may have anis in the yeir ane condampnit man efter he be deid to mak anatomie of quhairthrow we may have experience Ilk ane to instruct uthers, And we sall do suffrage for the soule."

But one body a year was not much, and so when the school of anatomy was founded in Edinburgh in 1694 they were granted "those bodies that dye in the correction-house; the bodies of foundlings who dye betwixt the tyme that they are weaned and their being put to schools or trades; also the dead bodies of such as are stifled in the birth, which are exposed, and have none to owne them; as also the dead bodies of such as are felo de se; likeways the bodies of such as are put to death by sentence of the magistrat." This condition was not peculiar to England, however, for, according to Tulp, public dissections were made on Sundays in the Holland of his day, *provided there was a hanging*. These dissections were advertised boldly, like those in London in Shakespeare's time, and the fact that they were held on Sunday suggests that this was done to add to the obloquy. There was an admission charge of fifty cents, the best seats being reserved for the authorities and for physicians and surgeons. Upon the payment of a special fee, parts of the dissected body might be carried away by those interested, but it should not be forgotten that the dissections of those days were totally different from those of the present. They might better have been called inspections, for they took only a relatively few hours, and the entire proceeding was calculated to increase the punishment and to cast odium upon the lives of those dissected. It is regrettable that the stigma thus placed upon dissection of the dead in many lands in that early day still hampers us at the present time.

THE CALIFORNIA LAW OF THE YEAR 1854

It is of special interest that, although no medical schools existed in California in 1854, disinterment of the dead for purposes of dissection was specifically forbidden in that year, under the customary statute preventing desecration of sepulture. This statute (8, 1854), in fact provided that "Any person or persons who shall enter or molest the enclosure of a public graveyard for agricultural, mining, or other purpose, or who

* From the Department of Anatomy, Stanford University.

shall disinter, mutilate, or remove the body of any deceased person, after the same has been interred in any graveyard, vault, or other place of burial, shall be deemed guilty of a misdemeanor, and upon conviction thereof, in a court of competent jurisdiction, shall be punished by imprisonment in the state prison not less than two, nor more than ten years." Relatives, however, might disinter bodies, and since Section 4 of this Act defined a public graveyard as a place "where bodies of six or more persons are buried," it is clear that some places of burial could, after all, be entered lawfully and that not all disinterments for other than the specified purpose were actually forbidden, provided the person who disinterred the body did not know for what it was desired.

A similar bill was passed by the California senate in 1873 and the Committee on Hospitals of the assembly suggested the addition of the words "or destroy or remove shade, ornamental or other trees, unless by direction of the proper authorities." This suggested that what was concerned was not merely the protection of cemeteries against "resurrectionists," but against other desecrations in other respects as well.

STATE MEDICAL SOCIETY'S RESOLUTIONS OF 1856

The earliest effort to legalize dissection which I was able to find was made by the State Medical Society in March 1856. In the minutes printed in the *California Medical Journal* 1856, Vol. 1, pp. 17-18, it is stated that Doctor Cooper offered the following preamble and resolutions:

Whereas, The laws of our state render surgeons obnoxious to prosecution and liable to heavy damages if they operate wrongfully through ignorance, at the same time making no adequate legal provision for obtaining a knowledge of the human system; therefore, be it

Resolved, That in view of the good of the profession, as well as community, dissections should be legalized, under all proper restrictions.

Resolved, That a committee of five (5) be appointed to memorialize the legislature upon the subject.

Upon motion, the above was referred to the Committee on Legislation.

Although I searched the legislative journals, I did not find any comment on or mention of such a bill. Nor did I find any comment on later bills and I did not feel encouraged to make a search of the daily press.

THE ANATOMY LAW OF 1870

Since the dead have, from time immemorial, been regarded as sacred and also as defiling, their use for purposes of instruction violates public sentiment and this use consequently had to be legalized. This was done in 1870. This law was entitled "An Act to Promote the Study of Anatomy," but it permitted "physicians" to have "human dead bodies or parts thereof for purposes of inquiry or anatomical instruction." Both "physicians" and "surgeons" were required, however, to present a certificate of fitness to possess the human dead, from the medical society or in the

absence of such, from the county board of supervisors. A bond with two sureties was required of both physicians and surgeons and the dead were to be used only for the "advancement of anatomical science." Paragraph 1 permitted only "physicians" to possess the dead for purposes of "instruction and inquiry" and they alone were required to bury the bodies so used at their own expense, surgeons not being mentioned in this connection. The bodies of travelers and of those who had specifically requested to be buried, or such as were claimed by friends, were exempted from such use.

LATER LEGISLATION

Beginning in 1889, further exemption was made of the bodies of ex-Union soldiers, sailors, and marines who had been in the service of the United States. Their burial was provided for at public expense not to exceed \$50 each. In 1901 all such as were honorably discharged and the widows of these were accorded a similar right, and in 1911 the allotment for burial was raised to \$75. It was raised further to \$125 in 1913, but changed back to \$75 in 1917. This is a munificent sum compared to what the national government paid during the influenza epidemic of the Great War or pays now for the burial of veterans.

The law of 1872 (Political Code, sections 3093, 3094, and 3095), left that of 1870 unchanged except that preference was given to medical schools and the clause requiring "physicians" to bury the remains at their own expense was eliminated. Paragraph 291 of the Penal Code of this time put a penalty of imprisonment of five years on disinterment of the dead for dissection and on other desecration of sepulture.

THE LAW OF 1907

After the advent of osteopathy, the law of 1872 was revised in 1907 permitting a similar use of the dead by students of osteopathy. The wording of the law also was changed so as to permit anyone licensed by medical or osteopathic boards or students acting under their authority to obtain and have in their possession "human dead bodies or parts thereof" for the purpose of anatomical inquiry or instruction. The bodies were to be obtained from among those required to be buried at public expense and "any sheriff, coroner, keeper of county poorhouse, public hospital, county jail, or state prison, or the mayor or board of supervisors of the city of San Francisco" were ordered to surrender the unclaimed dead upon request to those entitled to receive them. Medical and osteopathic schools of the state were given precedence in this law, and the bodies of certain individuals were again exempted.

It is interesting that the only but very laudable, alleged purpose of the law of 1907 was "the promotion of anatomical science." This was the customary phrase, although the use of the dead for this purpose necessarily, though regrettably, remained purely incidental to that of instruction

of medical students. Although the law of 1907 was mandatory in regard to the delivery of the dead to those desiring them for educational purposes, it did not penalize those who failed to comply with this provision. Hence it happened, for example, that when the unclaimed body of an Indian who had been a public charge for twenty-three years was asked for by medical schools the person in possession of it announced publicly through the local press that "he did not believe in letting an old woman be cut up in the dissecting rooms." Since it was alleged that this pauper was over 106 years old, the unclaimed body was wanted for the investigation of structural changes associated with senility, by one specially interested in this subject. But in spite of the mandatory provision of the law, this body could not be obtained from him who sought to capitalize false sympathy for political advantage.

The attempt to make political capital out of such situations as this is not new, to be sure, and I recall a district attorney who announced in the metropolitan dailies of one of our central states that he did not propose to let the *unclaimed* body of an unfortunate young woman, illegitimately pregnant, who had committed suicide, become the object of "the ribald jibes and jests of callous medical students." Had this attorney spent some of his effort in determining who was responsible for her condition and suicide instead of reviling medical students, he might have done the community a real service. I further recall a candidate for mayor in one of our great cities who demanded that those entitled to them cease accepting bodies of persons who had belonged to a certain religious sect, although this particular sect, of which he was not a member, had made no protest to those receiving the unclaimed dead and always had coöperated in this matter. It is easy to see whose vote this candidate desired to obtain by such means.

The law of 1907 did not require those having the unclaimed dead in their possession to notify educational institutions in need of them of this fact. The latter were hence put at a great disadvantage, for they manifestly could not ask for that which they did not know existed. Moreover, the law was open to the interpretation that a new bond had to be supplied for every body, or at least in every county in which it was proposed to ask for bodies, and the period in which the dead could be claimed by relatives or friends was entirely too brief. For these and also for other reasons it seemed best to undertake a revision of the existing law or to introduce an entirely new bill.

THE PROPOSED STATUTE OF 1921

Some features of the situation seemed to suggest that it would be wise to place the entire matter before the medical profession of the state through its official journal, but this was regarded as inadvisable out of political considerations. Hence, after long consideration, a bill acceptable to all consulted was formulated in 1921 and

placed in the hands of Senator Herbert C. Jones for suggestions and for introduction into the legislature.

Everyone familiar with the history of anatomy acts will realize that political preferment could not be gained by anyone sponsoring such a bill, however just, proper and necessary it might be. Whoever did so took some chance of offending public sentiment and of incurring the opposition of a few interested individuals, for although it is expressly forbidden, some of the latter really had been trafficking in the dead *de facto* if not *de jure*. This is the very reason why cities could find individuals anxious to bury the unclaimed dead for \$2.50 each at a time when the burial of certain classes of the indigent dead cost the public \$125 each.

The bill of 1921 provided for a special anatomical board to be composed of representatives of the institutions concerned and failed of passage merely because it was not reported out of committee in the assembly. Those who had it in charge there stated that they had assumed that it would be reported as a matter of course, for there had been no objections to it. It had seemed unwise to introduce it earlier, and it apparently was overlooked in the rather politically excited closing days of that legislative session.

The above bill was reintroduced at the next session in somewhat revised form, with the elimination of the provision for a special board because the then governor had used the slogan of economy during his campaign. We had been advised that it would be well to avoid the creation of a special board, even if this involved no added expense to the state. Fortunately the State Board of Health consented to assume the added duty of assigning the unclaimed dead and the bill was changed accordingly. An opportunity was given the governor to express his preferences regarding the bill, and in accordance with his suggestion, Senator Jones was again requested to introduce it into the senate, where it passed with practically no objection. The bill had met with no previous objection except that the recognition of cremation as a method of disposal of the unclaimed dead was desired by those commercially interested. This recognition was readily consented to by all concerned, for such a provision had not been thought of by those who had formulated the original bill, merely because the customary phrase in previous laws always was "burial of the unclaimed dead."

Assemblymen C. C. Spalding and Albert A. Rosenshine consented to sponsor this bill in the assembly. It passed unopposed, and apart from a report that certain undertakers objected to it because they wrongly asserted that it required undertakers to hold all bodies subject to claim for thirty days, no objections were raised to it as far as I could learn. This objection was, of course, wholly unfounded, for the bill very plainly provided that not the undertakers but those who claimed the bodies for educational purposes

should hold them that long, subject to claim by relatives or friends. Undertakers were required to hold the dead only twenty-four hours, as provided in previous laws, and they hardly were in a position to complain, for, as everyone knows, unclaimed bodies are voluntarily held much longer than required by law in order to afford time for the discovery of claimants who may pay much more for the burial than the public, for it is only in this way that the burial of the unclaimed dead can be made profitable in our metropolitan centers, in one of which five hearses were waiting recently outside a public hospital for one indigent to die!

That there really is keen competition among some undertakers for the burial of the unclaimed dead at the present time is attested by the following contemporary news item taken from one of our smaller dailies. It suggests that one still might appropriately quote the old couplet beginning

"While rival undertakers hover round . . ."

INDIGENT DEAD TO BE BURIED AT COST OF ONE CENT

— Bureau, —, June 8. Because of close competition between rival undertaking establishments, — County has negotiated a contract under which indigent dead of that county will be buried during the coming year at one cent per funeral, according to word received here today from —.

The contract was reported as providing for a ten-cent mileage charge for cases outside the County Hospital.

The vultures of Benares have no one to tell them of the bringing in of the dead and only come to satisfy their hunger.

Although the privilege of answering any objections that might be raised to executive approval of the above bill by others or that the governor himself might have to it was asked in the name of all interested in it, no such opportunity was afforded although the bill was vetoed. When inquiry was made regarding the reason for this veto, the governor concerned wrote saying he would be glad to consider the bill with us if we decided to introduce it at the next legislature, and added that he had vetoed it "on account of objections filed and for reasons which I deemed sufficient." Although the privilege of answering any objections that might be raised against its approval had been asked for in the name of all concerned, as stated, this courtesy had not been extended.

In view of the governor's statement that he would be willing to consider the bill with us if we decided to introduce it at the next legislature, he was given such an opportunity. He was also informed that we should be glad to know the nature of the objections alleged by him to have been filed against it, and to consider any changes which he cared to suggest. No information regarding objections to the bill was supplied, nor were suggestions for its modification made. The governor merely wrote that the previous bill "was opposed and represented as a bad bill" to him, and added that he would give the present—the third—bill careful consideration. Hence, after

consulting those concerned again regarding any changes, the bill was reintroduced by Senator Jones and passed both houses without objection, but was vetoed again by the governor, without giving its sponsors an opportunity to answer any objections that might have been raised to his approval of it. Yet this courtesy had again been asked in the name of all those concerned in its passage, and the governor had written saying he would be glad to consider it with us. When inquiry was again made regarding the reasons for the executive veto, the governor's secretary merely wrote saying that the inquiry regarding the governor's adverse action on the anatomy bill reached Sacramento during his absence in a southern city of this state.

It will interest everyone that before the next election, that of 1926, assurances were given that the governor, then a candidate for reelection, would approve the bill if it were again introduced, and that he said he merely vetoed it out of spite for a certain individual whom he honestly disliked! It so happens that the individual referred to gave this and all other medical legislation his friendly support, but was not one of those who was particularly consulted or especially concerned with its passage.

I trust that no one will suspect me of acting from political motives or of writing from mere gossip regarding these matters. Anyone familiar with political history will know that what usually is printed is, after all, only a very brief or incomplete but not, therefore, a partial record of the actual story, and this holds also in this instance. I regret that I have not been able to learn the inside story of the older bills, although I have spent considerable time on the matter. Neither the journals of the senate nor of the assembly nor the respective appendices contain more than the mere mention of the bills, and all the early medical journals also are silent. This would suggest that their passage or the attempted passage of other bills was wholly uneventful. This is quite improbable.

THE ENACTMENT OF THE PRESENT LAW IN 1927

With the election of Governor Young, the same bill was introduced for the fourth time by Senator Jones in 1927. It again passed both houses without objection and was approved by the governor, thus ending a rather long and tedious attempt to improve the Anatomy Act of 1907, twenty years later.

The law as it now stands is not the best that could be formulated, but only the best it was thought possible to secure at the time. It has a number of very advantageous provisions among which are the following:

1. The extension of the time during which bodies may be claimed by relatives and bona fide friends, from a period of twenty-four hours to thirty days.
2. It requires the keeping of records and their transfer upon request.

3. It puts the custody of the unclaimed dead in the State Board of Health.

4. It makes it mandatory to notify the State Board of Health of the possession of the body of the indigent dead.

5. It forbids autopsies on such bodies without consent of the state board or its representative or representatives.

6. It makes it lawful to obtain fresh human tissue for microscopic investigation at time of a coroner's autopsy.

7. It imposes the expense of burial upon relatives or friends who may claim the dead.

8. It makes noncompliance with its provisions a misdemeanor.

Experience with the administration of the Act of 1927 confirmed the surmises of those especially concerned in the formulation of the bill. Hence an amendment was formulated in 1929 through Dean Millberry, the representative of the State Board of Health for Northern Institutions, and with the coöperation of that board, providing that the bodies of all unclaimed dead shall come directly into the custody of educational institutions *at the place of death* and stipulating that "No other acts or parts of acts shall be construed as limiting the powers of the State Department of Public Health in the transportation or distribution of the indigent dead for educational purposes."

Since a single county with a population of only about 100,000 now buries more bodies annually at the expense of the taxpayers than are required by all the educational institutions of the state, it is evident that there is no dearth of the unclaimed dead. And since the people of California have, through their representatives in the legislature, repeatedly reaffirmed their wise decision to permit the use of the bodies of the unclaimed dead for educational and scientific purposes, no one should be permitted to stand in the way of the present law, for I do not believe that our people will become so benighted as to forbid the use of the dead for the instruction and help of the living. That would be more than suicidal, for the innocent also would suffer in consequence.

It is interesting that similar difficulties and experiences still are encountered in Scotland, where the Anatomy Act merely is permissive. As late as 1921 Professor Robinson wrote:

"It is well known that the number of unclaimed bodies buried in the United Kingdom every year at the public expense is sufficient to supply all the medical schools with the material necessary for the training of surgeons and physicians, yet there are few, if any, schools which receive an adequate supply, and the majority never have anything like a sufficient supply.

"That the supply known to exist is not available for the purpose for which it is essential is because, in many cases, members of the authorities to whom the legal control has been deputed give sentimental considerations more weight than considerations of the public welfare, and take means to evade the spirit of the Anatomy Act.

"It is to be noted that only the bodies of those who have no relatives are placed by the Act at the disposal of the state, and surely no one in authority has any justification, in such circumstances, to placate sentiment at the expense of the public good.

"The bodies which are sent to the medical schools suffer no disrespect; everything which is done to them is done under the control and inspection of H. M. Inspectors of Anatomy up to the time of the burial of the bodies in consecrated ground."

COMMENT

It is a great satisfaction to recall that it has not been the people at large who have been responsible for the difficulties connected with obtaining the bodies of the unclaimed dead, but only a few financially interested individuals who have relied for protection against exposure upon the possibility of taking advantage of public ignorance, sentiment, and belief. If these persons had to live without all the beneficent things that they owe to medicine and also had to go without the care of physicians, they would have a rude awakening and would meet with more condign punishment than any that could be imposed by law. Moreover, if the people were told the real facts, the few who use the unclaimed dead for profit would stand forth in their true character and could no longer disgrace their fellows.

The institutions which need the dead and are entitled to them by law always have paid undertakers considerably more for the *delivery of an unembalmed body* merely covered with a sheet than generally was allowed for the burial of them by municipalities or counties. Even a pauper's burial necessitates calling for the body, putting it in a black redwood coffin, digging the grave, interring the body and providing a plain board (numbered for identification), and keeping and filing the record, while all that is asked by educational institutions is the delivery of the naked body to them, the recognized claimants under the law.

Stanford University.

FRACTURE OF THE NECK OF THE FEMUR*

END RESULTS IN EIGHTY-SIX CASES

By JOHN C. WILSON, M. D.

Los Angeles

DISCUSSION by George C. Hensel, M. D., San Francisco;
John Hunt Shephard, M. D., San Jose.

CAREFUL end-result studies of fractures of the neck of the femur do not occupy a significant position in medical literature. It will be impossible to speak with authority on the merits of the different forms of treatment until more carefully selected data are available.

Much has been written about the treatment of hip fractures. The unfavorable results have caused wide differences of opinion as to the best plan of securing a cure. There appears to be a great variety of results with the accepted forms of treatment in the hands of competent surgeons. It is hoped that the report of the following cases may shed a ray of light on this problem.

* Read before the General Surgery Section of the California Medical Association at the fifty-eighth annual session at Coronado, May 6-9, 1929.

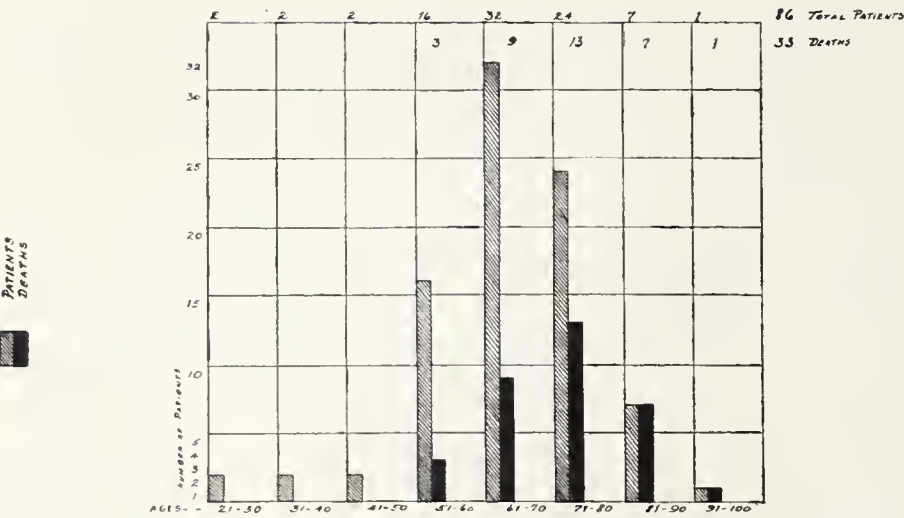


Chart 1.—Graphic illustration of mortality with respect to age of patients.

CLASSIFICATION

In describing hip-joint fractures the terms “intracapsular,” “extracapsular,” “medial,” and “lateral” are frequently used in medical literature, but these terms only add to the disorder because extracapsular or lateral fractures are not fractures of the femoral neck. The neck of the femur is an entity, and much confusion will be avoided if fractures are described according to their true anatomic confines. Fractures of the neck of the femur and those of the intertrochanteric region are not comparable. Intertrochanteric fractures should cause no concern, while the same cannot be said of fractures of the neck of the femur.

The term “impacted fracture” is ambiguous. It should be used only when its meaning is clearly understood. Locking of the fragments may be sufficiently secure to permit weight-bearing, but is in no sense an impaction. A careful study of stereoscopic roentgenograms will demonstrate a complete absence of contact between the fractured surfaces; on the other hand, the x-ray may show a break in continuity of the neck with a little shortening of the leg and a mild coxa vara.

TREATMENT

Treatment should be directed toward a reduction of the fracture which implies an anatomic restoration of the fragments until healing has taken place, or until it is demonstrated that bony or fibrous union is hopeless.

Some forms of treatment rely upon traction and countertraction to maintain reduction of the

fragments. The methods of Bardenhauer, Maxwell, and Ruth are the most familiar. Traction is not a practical way of maintaining reduction because it requires special apparatus and constantly trained supervision. The Whitman method is mechanically sound and allows the patient to be moved about in bed without the danger of disarranging the fragments. Whitman considers his treatment suitable for all patients irrespective of age, but there are surely some exceptions to this rule, for some of the aged will not tolerate any sort of a surgical procedure.

In briefly discussing Whitman’s treatment it is well to remember that complete anesthesia is not always necessary for reduction of the fracture. Scopolamin and morphin in small doses will produce narcosis which permits painless reduction and cast application. The patient is placed on a plaster table or sacral rest and the fractured leg is gently manipulated, gradually internally rotating and abducting the thigh. Complete abduction may cause downward displacement of the distal fragment (Figure 1). About ten degrees less than complete abduction is probably the best position. The spica plaster should include the toes on the affected side and extend to the knee on the opposite side. The patient will be most comfortable if placed on a firm bed, preferably one with boards under the mattress.

Stereoscopic x-ray control is essential to check the accuracy of the reduction. If the picture reveals a situation as shown in Figure 1, the operation must be repeated until the fragments appear as in Figure 2. Patients should be kept in the plaster cast for at least three months, preferably four months. If union is not sufficient in four months to maintain apposition of the fragments without weight-bearing, it probably will not occur with further prolongation of fixation. Demineralization of bones takes place after prolonged splinting. This is especially true in elderly persons.

A number of mechanical joints have been advocated to preserve movement in the knee joint by

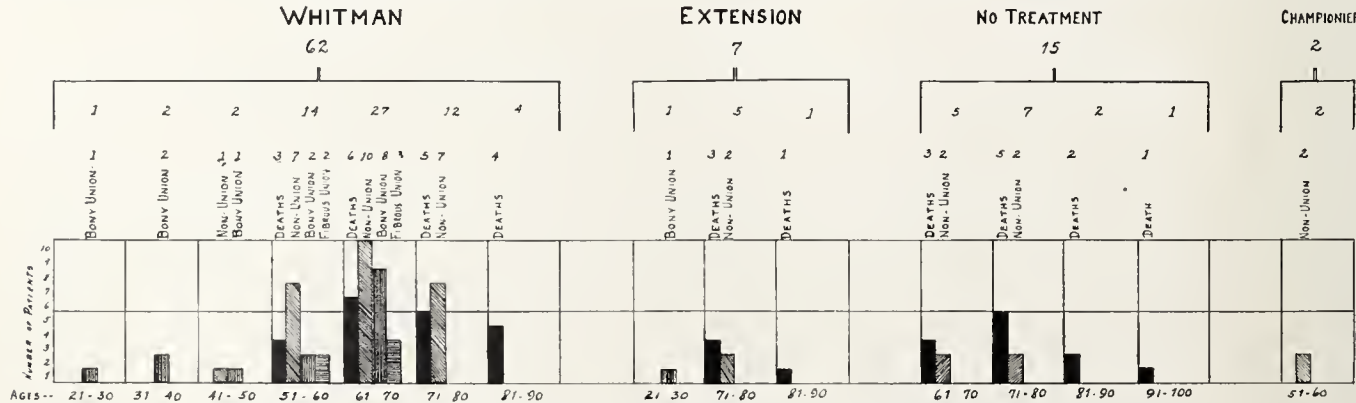


Chart 2.—Graphic illustration of age of patients, manner of treatment, and results.



Fig. 1.—Downward displacement of distal fragment because thigh has been abducted too far.



Fig. 2.—Good reduction.

making a hinge in the plaster cast. The lack of adoption seems to indicate their impracticability.

CAUSES OF FAILURE

Failure may be attributed to imperfect reduction, insufficient fixation, interposition of soft tissues, or lack of blood supply about the point of fracture. The surgeon has no control over the blood supply, but he can obtain and maintain a reduction. He also has a reasonable opportunity to prevent the interposition of soft tissues.

Eighty-six consecutive fractures of the neck of the femur from the orthopedic service of the Los Angeles General Hospital, all seen during a period of four years are offered for your consideration. Thirty-three of these patients are dead, twenty-eight having died in the hospital, and five after having been discharged from the hospital. Fourteen patients died from cardiovascular disease and nephritis; eight died from bronchopneumonia. Fibrinous pericarditis, lung abscess, cirrhosis of the liver and pyelonephritis each accounted for one death.

Three patients died suddenly after reduction of fractures. These deaths were attributed to coronary occlusion or pulmonary embolus. One patient died as a result of a ruptured bladder, due to the injury. The cause of death was not recorded in three cases.

Two patients had fractures between the ages of twenty-one and thirty, two between thirty-one and forty, and two between forty-one and fifty; with no deaths. There were sixteen patients between the ages of fifty-one and sixty; with three deaths. The period of sixty-one to seventy years included thirty patients; with nine deaths. The period of eighty-one to ninety years included seven patients; with seven deaths. The period of ninety-one to one hundred years included only one patient; with one death.

Sixty-two patients were treated by the Whitman method, seven by extension, three by the Championier method, and fifteen received no treatment. Of the sixty-two patients treated by the Whitman method, eight died during the treatment. The one patient between the ages of twenty-one and thirty (Figures 3 and 4) recovered with bony union; two patients between thirty-one and forty healed by bony union; and of the two patients between forty-one and fifty, one healed by bony union and one resulted in nonunion.

The percentage of nonunion increases with advancing years. Between fifty-one and sixty there were seven patients with nonunion, two with fibrous union, and two in whom there was no healing. The sixth decade includes ten patients who failed to obtain healing; three patients who received fibrous union (Figures 5 and 6) and eight patients who had healing with bony union. Not one of the seven surviving patients between seventy-one and eighty showed any signs of repair.

EXTENSION TREATMENT

Of the three surviving patients treated by extension, one healed by bony union. This was an accidental fracture which occurred during the manipulation of an arthritic hip.

NO TREATMENT

The patients classified under the heading of no treatment refused to submit to the measures recommended, or were too feeble for surgical interference. Only two of the fifteen patients survived the period of hospitalization and terminated in nonunion.

CHAMPIONIER METHOD

Two patients were treated by the method of Championier, mobilization and massage, and both were failures.



Fig. 3.—Complete unreduced central fracture of the neck of the femur in female aged thirty-seven.



Fig. 4.—Same as Fig. 3, three years and five months later. Healed in good position. Note the normal trabeculation across the line of fracture.

CONCLUSIONS

This series of cases demonstrates that fractures of the hip are not due to severe violence. A large proportion of these fractures were due to injuries occurring in homes of the patients, such as tripping over rugs, or slipping from steps.

The mortality from hip fractures is relatively high. This is, of course, partly due to the fact that these injuries belong to the latter decades of life. The fractures often serve to precipitate fatal

crises in persons suffering from cardiovascular diseases, and result in death during the first week subsequent to the injury. Pneumonia is a common fatal complication.

Incomplete fractures of the femoral neck should not be broken up by manipulation, as they seem to heal at any age if properly splinted (Figures 7 and 8).

Fibrous union of a fracture of the neck of the femur allows only a fair return of function.

1136 West Sixth Street.



Fig. 5.—Complete fracture of neck of the femur in female aged sixty-seven.



Fig. 6.—Same as Fig. 5, two years later. Note cystic appearance of femoral head with marked eburnation at the fracture line and absence of trabeculation.



Fig. 7.—Incomplete fracture of the neck of the femur in female aged sixty-five.



Fig. 8.—Same as Fig. 7, one year following injury. Complete recovery without disability.

DISCUSSION

GEORGE C. HENSEL, M.D. (384 Post Street, San Francisco).—This survey of results in eighty-six fractures of the femoral neck, while largely statistical, seems to favor the Whitman procedure as meeting a larger number of requirements than surgical repair, traction, or other manipulative technique.

This in my experience is quite true, yet under favored conditions, particularly those of age, physique of patients, and individual mechanical features of a given cervical fracture, I should not hesitate to recommend surgical repair or artificial impaction.

There can be no doubt that in skilled hands the latter procedures offer no greater chance of nonunion or objectionable fibrous union and do offer, I believe, a somewhat greater possibility of bony union.

The answer to this situation must surely be based on judgment and personal skill rather than general adoption of any one method.

Where the question of contact of fragments occurs, Doctor Wilson points out the need of stereoscopic roentgenograms. I would suggest that the use of Hickey's maneuver in the anterior posterior projections, *i. e.*, with the thigh adducted and then abducted, is even more certain in clearing this point.

In using the Whitman position, full abduction will more often give good bony contact and position than partial abduction. A full measure of internal rotation is similarly desirable. Full extension of the thigh offers valuable splinting action through the anterior capsular ligaments of the hip which are tense in this position. There are objections to full extension in older patients, of course, and when an early sitting posture is urgent, comfortable flexion at the hip may not greatly lessen favorable position when proper abduction and internal rotation has been secured.

Doctor Wilson's statistics are quite frank; any similar series will give parallel figures. The keynote of success in this fracture is to secure and maintain good bony contact of the fragments.

Manipulative procedure and plaster encasement does not seem universally to effect this end. It therefore becomes advisable in certain instances of fractured neck of the femur to employ forceful impaction or operative fixation, granting, of course, that these more serious procedures are not contraindicated by the physical condition of the individual.

The use of pseudo-arthritis or reconstructive procedures are individual problems and substitutes for bony union in functional position.

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JOHN HUNT SHEPHARD, M.D. (608 Medico-Dental Building, San Jose).—It is pleasing to listen to a paper which is divested of all shams, camouflage, and alibis. Doctor Wilson has presented actual results in a relatively large series, and if any of us think that our results are better it is because we have had younger and more healthy patients, or have forgotten some of our failures.

I believe that if one becomes thoroughly familiar with the principles and technique laid down by Whitman in the treatment of fracture of the anatomical neck of the femur, he will rarely find occasion to use any other method. It gives the highest percentage of useful hips, is the most comfortable to the patient, and greatly facilitates nursing care.

In order successfully to carry out this method, one must have an operating table with which sufficient traction, internal rotation and abduction can be secured and maintained while the cast is being applied. The attempted application of the Whitman technique without the aid of a proper table has caused many men to turn to other methods, and when unsatisfactory results are obtained to excuse themselves because unsatisfactory results are common with all methods.

If the patient's bed is fitted with a Bradford and Balkan frame with a windlass attached, the patient can be tilted from side to side and the head raised thirty or forty degrees, which adds greatly to his comfort and may occasionally prevent a postural pneumonia.

I have been interested in preventing the stiffness of the knee joint in these patients whom we sentence to three or four months in plaster. Why does an immobilized joint stiffen? What are the tissue changes in and about the joint immobilized for three or four months? As yet, these two questions have not been answered by autopsy or experimental study.

This stiffening of the knee joint, which is a great objection to the long spica, can be largely prevented by the introduction into the plaster cast of a proper knee joint hinge, permitting daily movement of the knee joint without disturbing the fixation of the fragments. It is interesting to note how little daily movement will prevent joint stiffness.

SODIUM ISOAMYLETHYL BARBITURATE*

REPORT ON ITS USE AS AN AUXILIARY
ANESTHETICBy L. A. RETHWILM, M. D.
San Francisco

BARBITAL and the barbiturates have been known and used for many years, but it was not until 1929,¹ that sodium isoamylethyl barbiturate, after animal experimentation, was added to our list of auxiliary anesthetics for man.

At first, and in many places, it was tried for producing complete anesthesia. Because of its seriously depressing action on respiration and blood pressure and its prolongation of the period of unconsciousness, with its attendant disadvantages and dangers, we have never administered it in large doses that might jeopardize the patient, but merely as an adjunct to other anesthetics—as part of the preliminary medication.

A report following one hundred and fifty instances of its use at Stanford University Hospital has been given by Doctors Holman and Palmer.² Additional cases have been added to this list since then, but these will not be detailed at this time. It may be of interest to discuss our experience with it in general and also to review some of the salient features which were observed in various types of operations on patients who had received sodium isoamylethyl barbiturate.

PRELIMINARY NARCOSIS

At first we complied with the suggestion of ordering ephedrin, three-fourths or three-eighths grain, before the sodium amytal. After a short experience it was found that ephedrin was not necessary for the conservative doses of sodium amytal we gave and its use as a preliminary safeguard was discontinued. We keep it and caffein and a 10 per cent carbon dioxid-90 per cent oxygen mixture on hand at all times, to be given if needed.

A preliminary narcotic of morphin or morphin and atropin was found to be valuable for a smoother anesthesia resulted. This result is plausible when we consider that the barbitals affect the subcortical centers, while morphin has a cerebral-cortical action, as has been shown experimentally by Pick;³ and scopolamin affects mainly the cord and central nervous system. Sodium isoamylethyl barbiturate affects the autonomic nerves and the subcortical areas and in large doses poisons skeletal and smooth muscle; in fact, acts as a general protoplasmic poison and depressant of metabolism.

Some patients received sodium isoamylethyl barbiturate by mouth. The action was slower and less profound than when given intravenously, but had the advantage of not introducing a foreign

substance that could be given in some other manner into the blood stream.

Although many things about the drug are not as yet completely understood, it is known that it precipitates at the reaction of blood, which is P_{H} 7.4, and therefore presumably intravenously, since sodium amytal is in solution in much higher degrees of alkalinity, namely, P_{H} 9.5 to 9.8.^{1 4} It is likely, therefore, that it exists in a colloidal or flocculent state in the blood.

PRECAUTIONS OBSERVED IN USE

Because of its possible untoward effects, both immediate and later, we introduced the solution very slowly when given intravenously, taking blood pressure constantly. If the blood pressure dropped suddenly or considerably (20 to 40 degrees) from the preliminary reading or if there was great depression of respiration, we either discontinued the injection altogether or if it seemed desirable to give a larger dose, we waited a minute or two for the blood pressure to improve before introducing more into the vein, and gave no more if the blood pressure continued to fall. At no time was it given faster than one cubic centimeter a minute and usually more slowly.

PHYSIOLOGIC REACTIONS TO DRUG

Blood pressure readings, pulse, and respiration were taken throughout the operation. In only a few instances was the respiration sufficiently depressed to require the addition of carbon dioxid. There was no occurrence of delirium when the drug was given, but several of those who had had larger amounts of around twenty grains showed some delirium after operation. This was calmed by morphin.

The amount of sodium amytal which was used, in most instances did not keep the patient quiet during the preparation of the skin. Nitrous oxid-oxygen was begun as soon as any restlessness or movement was shown. Patients were often sufficiently asleep, however, to make it advisable to use an airway, as the tongue tended to relax and drop back or at least block free breathing; but as the pharyngeal reflex was usually still somewhat active, the airway was not inserted as far as the pharynx.

During the anesthesia with nitrous oxid and oxygen following sodium isoamylethyl barbiturate the pupils were small or of moderate size, and the eyes were usually fixed and looking forward as in surgical anesthesia; whereas in nitrous oxid-oxygen anesthesia with preliminary medication of morphin or even scopolamin and morphin, the eyeballs ordinarily roll gently.

Even with moderate and small doses of sodium isoamylethyl barbiturate, the patients require more postoperative nursing care because of the longer period of unconsciousness, the occasional restlessness or delirium, and the necessity of clear-

* Chairman's address, Anesthesiology Section of the California Medical Association, at the fifty-ninth annual session at Del Monte, April 28 to May 1, 1930.

ing away any mucus which may be present and which, because of the slow return of reflexes, is in danger of being aspirated. Whether this mucus is more glairy than that of the average patient is, I believe, a disputed question. The same holds true of the incidence of postoperative pulmonary complications. Without due nursing care, especially after long duration of sleep or in patients who have a chronic cough, passive congestion and other untoward pulmonary and other conditions have been known to occur.⁵

When sodium amytal is used, an ideal dose would seem to be one which would send the patient into a light sleep either in his own room or in a pleasant anesthetic room; a dose that would not depress respiration or decrease blood pressure more than a slight initial drop, which would have recovered by the time the operation itself begins, or shortly after; and a dose that would require a nitrous oxid-oxygen anesthesia to be maintained during the preparation of the operative field and during the operation, and would leave the patient so lightly asleep at the close that he could be roused easily by speaking to him. This would offer most of the advantages of the drug without its dangers or disadvantages. This is the procedure which we are now following.

REPORT OF RESULTS

In giving our results with nitrous oxid and oxygen after sodium amytal, it must be borne in mind that for years nitrous oxid and oxygen has been our anesthetic of choice in a large percentage of our operative work. Our surgeons, almost without exception, have trained themselves to a gentle manner of operating, a feather touch, so essential to the best surgery and which does not require patients to be as profoundly asleep nor muscles as limp as some desire.

As a result, thyroidectomies, thoracoplasties, radical breast amputations, prostatectomies, hernioplasties, and all bone or nerve surgery have for years been possible under nitrous oxid and oxygen, usually without ether or occasionally with the addition of a few breaths of it for greater relaxation; and without the amount of cyanosis or anoxemia described by many. Even stomach, gall bladder and like operations have quite frequently been performed without auxiliary ether.

As there has been very little or no vomiting as a rule after our routine anesthetics, we cannot, definitely, from our charts credit sodium isoamylethyl barbiturate with this advantage, though possibly there has been even less nausea than usual following it. We can say, however, that after sodium amytal we have not noticed any attempts on the part of patients to vomit during the nitrous oxid-oxygen anesthesia, as they will at times try to do during nitrous oxid-oxygen without the drug, to the inconvenience of the surgeon and the distress of the anesthetist.

Aside from any consideration of the toxic properties of the new drug, our results with its

use as preliminary medication were in themselves very satisfactory. Some groups of cases may be of interest.

REPORT OF CASES

Five patients who had thoracoplasties varied in age from 17 to 45 years and in weight from 124 to 141 pounds. Morphine sulphate one-sixth grain and atropine sulphate 1/150 was given in each case a half-hour before. Sodium amytal was introduced slowly intravenously, the doses being 6, 11, 12, 12 and 15 grains. No ether was used; 10 to 30 per cent oxygen was added to the nitrous oxid, averaging 20 per cent in most cases.

Fourteen thyroidectomies were performed after injecting the drug. The ages were from 26 to 61 years, and the weights from 95 to 152 pounds. Preliminary morphine, from one-eighth to one-fourth grain, but one-sixth in most cases was given with atropine. The sodium amytal used varied from 9 grains in five of the patients to 16½ grains in one patient. Only once was as little as 10 per cent oxygen used. The others received 15 to 35 per cent each, in many instances 20, 25, and 30 per cent for the greater part of the operation. No ether was used for any of these.

Ether was not used for the four patients with breast amputations, who each had morphine one-sixth and atropine 1/150; and who had sodium isoamylethyl barbiturate in doses of 6, 10, 13½, and 15 grains. Their ages varied from 37 to 67 years and their weights from 106 to 212 pounds. Oxygen given varied from 10 to 35 per cent, but was mostly 20 to 35 per cent.

Four gastro-enterostomy patients were satisfactorily relaxed with 9, 12, 13½, and 15 grains of sodium amytal, no ether being used. Oxygen varied from 10 to 25 per cent. Two others had to have a few breaths of ether to give sufficient relaxation. They had 9 and 12 grains of sodium amytal intravenously and 10 to 25 per cent of oxygen was used. Each of the six had morphine one-sixth and atropine 1/150 a half-hour before. So also did two patients for gastro-enterostomy and appendectomy who had 12 and 14 grains of sodium amytal and 5 to 25 per cent oxygen. One of these had a few breaths of ether at the start.

A resection of the stomach was performed without addition of ether on a 55-year-old patient receiving 6½ grains of the drug intravenously. Ten to twenty per cent oxygen was given with the nitrous oxid.

Four prostatectomy patients each had morphine one-sixth and atropine 1/150 followed in an hour by sodium amytal 7, 7½, 7½, and 9 grains, respectively. They were satisfactorily relaxed without ether on a nitrous oxid anesthesia with 15 to 25 per cent oxygen.

Six patients who had rectal work, as fistula in ano, rectal polyp, hemorrhoids, and prolapse of rectum, received sodium isoamylethyl barbiturate in doses varying from 9 to 20 grains, following morphine one-sixth and atropine 1/150 in all except two, who received morphine one-fourth. They remained relaxed without ether and with the use of nitrous oxid with 10 to 30 per cent oxygen added.

Three patients had operations on the liver, one for carcinoma, and two for abscesses. They received as preliminary preparation, morphine sulphate grains one-sixth with atropine 1/150, and 6, 9, and 10 grains of sodium isoamylethyl barbiturate intravenously. No ether was required in any, but nitrous oxid was given with 15 to 25 per cent oxygen.

To mention the five operations on gall bladders, thirteen hernias, and many other operations done in like manner would seem like repeating the same story under different names.

COMMENTS

At no time did we have a serious initial fall in blood pressure or a marked later fall that could be blamed on the drug. There was usually a fall about the time the patient lost consciousness which

returned almost to normal near the start of the operation.

There were a few instances of depressed respiration which were readily improved by the addition of carbon dioxide.

CONCLUSIONS

In the preliminary preparation, the addition of a small or moderate dose of sodium isoamylethyl barbiturate has made it easier to keep patients properly relaxed; has, so to speak, broadened the plane or region in which they remain satisfactorily asleep.

It has made possible on most occasions the administration of a larger amount of oxygen than usual.

Ether has had to be added to the nitrous oxid anesthesia in fewer instances.

It has relieved nervous and apprehensive patients of the realization that they will receive an inhalation anesthesia which they have dreaded.

There has been less nausea and vomiting.

The patient did not awake sufficiently to become unpleasantly sensitive to the return trip to his room.

Opposed to these advantages is the objection raised against introducing a foreign substance intravenously, when it can be prevented.

If the small or moderate doses now recommended are not exceeded, and if the usual precautions are taken after operation, there is not likely to be postanesthetic delirium, or dropping of the tongue, or the long relaxed sleep with the hazards it favors, unless extraordinary precautions are taken to prevent them.

Nursing care will be somewhat increased, but not markedly so, if moderate amounts only are used.

If properly administered in selected cases, sodium isoamylethyl barbiturate may be considered a useful addition to our anesthetic armamentarium.

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CHEMICAL ADJUNCTS TO GENERAL ANESTHESIA*

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CHEMICAL adjuncts to general anesthesia were introduced with Claude Bernard's suggestion (1869) that morphin be given before anesthesia to relieve fear and worry and to make anesthetization easier. Chemical agents are now indicated as adjuncts to general anesthesia for many other purposes besides (a) preanesthetic hypnosis, as (b) the regulation of metabolism preoperatively, (c) for aid in the induction, maintenance, and rapid recovery from direct anesthesia, (d) for the relief of postanesthetic nausea, and (e) for postoperative analgesia.

PREANESTHETIC HYPNOSIS

The chief object of using chemical agents as preanesthetic hypnotics is to relieve the fear most patients have of the coming operation and particularly of the administration of the anesthetic. While this fear may be alleviated by proper psychic preparation of the patient, the preanesthetic hypnotic is also useful in lowering the patient's general metabolic level to a point where the anesthetic itself may be easily and smoothly administered. Then a proper depth of surgical anesthesia may be readily obtained by nitrous oxid and oxygen without pushing the nitrous oxid to dangerous asphyxial concentrations. This is well recognized to be the safest and most easily controlled general anesthetic, avoiding the severe metabolic disturbances caused by ether or chloroform and the explosive risk of ethylen.

In spite of the fact that there is great dissatisfaction with morphin and hyoscin (scopolamin) as preanesthetic hypnotics, they continue in general use in the absence of any pressing clinical necessity for something better. This is surprising in view of their definite and independent condemnation years ago by such competent clinical observers as Herb, Gatch, and Bevan.¹ A consideration of the pharmacology of these agents may be of interest in support of this clinical opinion.

Morphin primarily causes a general stimulation of the central nervous system, which is promptly masked in humans by a secondary depression. But *the stimulating action outlasts the depression*. This leads to increased irritability and cortical excitement after the depression wears off, and is apparently responsible for the initiation of the craving and habit (to get back again the pleasant euphoria of the depressant stage).² Morphin is further not helpful in anesthesia because the tendency to respiratory depression interferes with the rapidity of absorption or elimination of an inhalation anesthetic, and its tendency to cause con-

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stipation is a handicap to a proper postanesthetic condition. Again morphin disturbs metabolism, as reflected in its effect on blood sugar and on the acid-base balance, in a manner not conducive to the best anesthesia. It should be stated, however, that the clinical belief that morphin interferes with kidney function has little foundation when critically examined.³

There seems to be no rational evidence indicating that opium or a mixture of the opium alkaloids free from nonalkaloidal material ("pantopon") has any advantage over morphin as a preanesthetic hypnotic. Indeed, the mixture of differently acting alkaloids in opium is a distinctly irrational material to use, since not only is there known to be aggravation of some of the deleterious effects of morphin, as its constipating and nauseating action, by giving it with the other alkaloids of opium, but very few of these other alkaloids have been properly studied either pharmacologically or clinically to know just how they do act. It is in the interests of scientific therapy to use chemical agents singly for definite effects, avoiding complicating mixtures of any sort. Certainly there is no need to complicate preanesthetic hypnosis; rather it should be simplified and rationalized.

Hyoscin or scopolamin synergizes with morphin and enhances its depressant action, especially on the cortex, giving clinically, as Doctor Emge has expressed it, "that desired preanesthetic level between hypnosis and narcosis." But the pharmacology of hyoscin is not well enough known to permit an opinion regarding its effects in connection with anesthesia. In the absence of any critical evaluation of its usefulness as a preanesthetic hypnotic, there seems little justification for its continued employment merely because of a clinical routine or habit. It is chemically related to atropin and has somewhat the same type of action as atropin on the autonomic nervous system. This has no special value in preanesthetic medication, but may introduce deleterious factors, as we shall see. It remains for clinical judgment to furnish reliable evidence of its value as an adjunct to anesthesia.

In an attempt to find other preanesthetic hypnotics which may be substituted for morphin, a number of other chemical agents have been studied in my laboratory from the standpoint of their effects on body functions, in comparison with morphin,⁴ on normal human subjects. In this study, we concluded that codein has not sufficient depressant action on the central nervous system to justify it clinically as a preanesthetic hypnotic.⁵

Current interest in "sodium amytal" directed our attention to barbitol and its derivatives. On the basis of our observations on normal humans we may recommend barbitol by mouth as a possible substitute for the preanesthetic use of morphin when no pain is present. In doses of 0.5 to

1.5 grams, or even higher (if definite sleep, relaxation, and amnesia are desired), it may be expected in the average adult, to bring relief from fear and apprehension, and to dispose toward sleep, relaxation and amnesia. It depresses the basal metabolic rate in the same way as morphin, but has little or no effect on other bodily functions, except in high dosage. There is no residual stimulation, and the psychic disadvantage of hypodermic administration is avoided. It may cause occasionally a cutaneous rash, however, and it is of little value as a hypnotic if pain is present. Subjective reactions to barbitol vary greatly with "constitution" and social background. But it is definitely indicated when ordinary local anesthetics are to be used, since it protects against their toxic manifestations.⁶ We could not find that phenobarbital, or any of the commercial modifications of barbitol, including "amytal," "dial," "ipral," "neonal," and "phanodorn," have any advantages over barbitol as hypnotic agents. Indeed, they all showed definite disadvantages.⁷

Sodium amytal has been overenthusiastically recommended as a general anesthetic when administered in strongly alkaline solution by vein. While the induction of sleep and amnesia by this technique is dramatic, it is clinically obvious that the agent is in itself not sufficiently analgesic to serve satisfactorily as a general anesthetic. *The safety margin between the dose that will cause real anesthesia and that which will dangerously depress the medullary centers is far too small.* This places sodium amytal in the class of anesthetic adjuncts, as now admitted by its original proponents.⁸ Here its usefulness is restricted to patients who are abnormally fearful or excited, in whom complete amnesia is desired before bringing them to the operating room, since satisfactory depression of the "metabolic level" of the average patient may be more simply and satisfactorily obtained by giving barbitol, an official pharmacopial preparation, by mouth.

The same general considerations hold for tribromethyl alcohol ("Avertin"). Enthusiastically advocated as a general anesthetic by those who have rarely witnessed good modern anesthesia by gas and oxygen, more critical clinical opinion now recognizes this material again more properly as an adjunct to anesthesia.⁹ The difficulties of preparation, the dangers of toxic decomposition, the mode of administration, and the pharmacological action of the drug limit its usefulness to abnormally apprehensive or excited patients, and then in doses not so high as to give partial analgesia with dangerous depression of the medullary centers.

It should be pointed out that the prolonged action of tribromethyl alcohol and of the barbitals, especially sodium amytal by vein, may be useful postoperatively in keeping the patient quiet and asleep. But if the dose is too high, the depression is so severe that constant attention is necessary to prevent accidental asphyxia or other complications.

To summarize this pharmacologist's view of preanesthetic hypnosis, it would seem that a little housecleaning is in order. Routine preanesthetic medication is certainly to be condemned, and as Doctor Botsford has so long urged, each patient must be separately considered from the standpoint of preanesthetic hypnosis, with regard to chemical agent (if necessary at all), dosage, and mode of administration. Morphin, or one of the synthetic analgesics such as amidopyrin, may be rationally used when pain is present. Barbitol by mouth may be recommended as a possible substitute for morphin, on limited pharmacological and clinical evidence, when pain is not present. Tribromethyl alcohol by rectum in three per cent solution, never heated above 40 degrees Centigrade, and sodium amytal in 10 per cent alkaline solution (pH-9.6) by vein, may be recommended in conservative dosage in certain abnormally fearful or excited patients, or when oral administration is contraindicated.

ATROPIN

Atropin was introduced as an adjunct to chloroform anesthesia in order to prevent reflex stoppage of the heart during the induction of chloroform anesthesia by paralyzing the peripheral endings of the vagi. With ether anesthesia it is used to prevent the "mucous inundation" caused by the irritating action of the vapor on the bronchial mucous membranes, and to suppress salivation. Use of atropin for this latter purpose has been questioned by Osborne¹⁰ on the basis that the irritating injury of the vapor is present even if the secretion of mucus to wash it away is prevented, and that it is not physiological to interfere with the protective function of bronchial secretion. Further, the bronchial and intestinal relaxation induced by atropin may not be helpful to the postoperative condition of the patient. Atropin tends to cause some cortical stimulation, and certainly the dryness of the mouth it causes is no joy to a patient already thirsty in the usual postoperative state. Since there is no special reason to use atropin with gas-oxygen anesthesia, and since its disadvantages outweigh its advantages with ether, it seems it should be reserved for use as an adjunct to chloroform anesthesia.

ANESTHETIC ADJUNCTS REGULATING METABOLISM

Comparatively recent pharmacological studies have indicated the severity of the effects induced by general anesthetics, especially ether and chloroform on metabolic activity. The disturbance of carbohydrate metabolism is especially significant in relation to postanesthetic nausea and vomiting. Recognition by anesthetists of the factors concerned in maintaining normal metabolic function has brought great improvement in this field. Patients are no longer routinely dehydrated by saline or other purgatives, nor are they starved into a partial acidosis before anesthetization. Instead,

by means of sweetened fruit juices both the carbohydrate and the alkaline reserves are fortified. If the patient already has a disturbed sugar metabolism, or if nothing can be tolerated by mouth, insulin and glucose may be given hypodermically.

Alkalinization before anesthesia is useful not only to take care of the fixed acids formed during anesthesia by the disturbance in sugar metabolism,¹¹ but also to protect the kidneys.¹² Rather than do this by sodium bicarbonate, with the danger of overdoing it and inducing tetanic reactions, mild alkalinization by fruits, or by sodium or potassium acetate, is more satisfactory. The sodium or potassium acetates, citrates, oxalates and malates in fruits are metabolized in the body so that all except the sodium and potassium are burned away to carbon dioxid and water. The residual alkaline ions form reserve buffers with carbonic and phosphoric acids, and with proteins.

But the regulation of metabolism before anesthesia by chemical adjuncts is not nearly as important as general hygienic preparation by which diet, vitamin, sugar and alkali intake, exercise, and excretion may be so adjusted as to bring the patient into the operating room in the best physiological condition. Of course, in some patients in whom metabolism is disturbed by thyroid or other endocrine dystrophy, special metabolic regulation of another type, as with iodine, may be indicated before anesthesia is attempted.

CHEMICAL ADJUNCTS TO THE INDUCTION AND MAINTENANCE OF GENERAL ANESTHESIA

General inhalation anesthesia depends on the concentration of the anesthetic agent in the blood, which is established by the alveolar tension of the vapor in the lungs, the rate of circulation, and the rapidity of breathing. The alveolar tension is controlled by the partial pressure of the inhaled agent, and while the circulatory rate is difficult to control rapidly or easily, the respiratory exchange may be facilitated by stimulation of the respiratory center by small amounts of carbon dioxid. At Henderson's suggestion, five per cent carbon dioxid is the concentration usually employed. This may be enough to raise blood pressure slightly. Brown has made the interesting observation that this concentration blanches the bronchial mucous membrane,¹³ indicating that capillary constriction causes the rise in blood pressure. Whether this is sufficient to interfere with pulmonary circulation, and thus defeat the very ends for which carbon dioxid is proposed as an adjunct to anesthesia, remains to be studied. It is difficult to differentiate between the rapidity of inducing anesthesia with carbon dioxid as an adjunct and that induced ordinarily. It simply complicates the technique of induction.

The chief chemical adjuncts to the maintenance of general anesthesia are concerned with more or less emergency measures. While these generally

arise as operative crises their management is a function for which the anesthetist usually provides. Ringer's solution in dehydration; glucose and Ringer's solution in shock; ephedrin (to avoid the after-dilatation of epinephrin) in circulatory shock; caffen in impending circulatory or respiratory failure; epinephrin intracardially in cardiac failure, and artificial respiration and carbon dioxid in respiratory failure—these are the emergency agents indicated in various anesthetic crises. It should be emphasized that careful attention to the maintenance of adequate respiratory function is of prime importance in inhalation anesthesia, where the control of the anesthetic condition depends upon it.

CHEMICAL ADJUNCTS IN THE POST-ANESTHETIC STATE

Following the operation it is recognized that the quicker the anesthetic agent is completely removed from the system the better for the patient. This is conveniently accomplished, with inhalation anesthetics, by rapid ventilation induced by inhaling 95 per cent oxygen with 5 per cent carbon dioxid, as proposed by Haggard and Henderson.¹⁴ This has the added effect, as recently suggested,¹⁵ of clearing out bronchial mucous plugs, in connection with the violent respiratory efforts, and of possibly helping in the prevention of the so-called "postoperative pneumonia" or atelectasis.

Thanks to the observations of Thalhimer,¹⁶ postanesthetic nausea and vomiting, which seems to be due to an acidosis resulting from a disturbed sugar metabolism, may be controlled promptly and effectively by glucose and insulin. Proper preanesthetic preparation may be expected to reduce the incidence of these complications.

Postanesthetic intestinal complications are annoyingly difficult to handle. Here preanesthetic care deserves careful attention, especially in regard to diet, in the effort to reduce a gas-forming flora or to remove material for gas-forming organisms to act upon. Further, it would seem wise to avoid any preanesthetic medicament which may too greatly relax the gut.

Postanesthetic thirst and oliguria may also be prevented to a considerable extent by proper preanesthetic care, and by trying to prevent excessive dehydration during the anesthetic period. Reflex irritation of the tracheal and laryngeal mucous membranes by certain anesthetic vapors has been shown by Dooley¹⁷ to cause spasm of the renal vessels, leading to anuria. This may explain the impairment of renal function so often complained of postanesthetically. Such reflex irritation may be avoided in part by rebreathing technique with carbon dioxid filtration, as suggested by Waters, whereby the inhaled vapors are warmed and are also kept moisture-saturated, incidental to the reduction of heat and water loss from the lungs.

Postoperative pain must be handled by a definite analgesic. For this purpose, if substitutes for

morphin are desired, amidopyrin may be suggested. If sleep and amnesia are also desired, with relaxation, this may be combined, according to the individual needs of the particular patient, with barbital. There is an attempt to exploit "Allonal" for this purpose, but the scientific character of this preparation has not been substantiated to the satisfaction of the Council on Pharmacy and Chemistry of the American Medical Association.¹⁸ Certainly there is little excuse for the use of a mixture in fixed proportions of a barbital derivative with amidopyrin at an exorbitant price. If the pain is from generalized trauma, neocinchophen may be suggested. Cinchophen is liable to be too toxic on repeated administration, but its ethyl ester, neocinchophen, has no significant toxicity and seems to be therapeutically as active.

SUMMARY

A consideration of some of the possible chemical adjuncts to anesthesia indicates the need of an extended critical pharmacological and clinical evaluation of the various agents proposed for preanesthetic hypnosis or metabolism regulation, and for postanesthetic complications. Such an evaluation should be made in the light of present physiological conceptions and the objects of anesthesia. *Only such chemical adjuncts to anesthesia, and only such anesthetic agents, should be used as contribute to, or disturb the least, the best physiological condition of the patient.*

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THE INFLUENCE OF SODIUM AMYTAL ON URINARY EXCRETION*

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IN the introduction of any drug which is likely to find universal usage we must, above all, be certain that its margin of safety is such that even in the hands of the less experienced and the less cautious the effect of the drug will not create a state of serious danger to the life of the patient. Whenever dramatic and spectacular reactions overshadow dangers not easily discerned we must then make doubly sure to discover all possible sources of danger. This applies particularly to the barbituric acid derivatives which, when given in sufficiently large doses to induce deep hypnosis, are known to produce vasomotor and respiratory depressions of major importance easily overshadowed by the dramatic action of these drugs. The only difference between the various barbituric acid derivatives which are otherwise quite similar in their therapeutic and pharmacologic action is their respective toxicity determined by their margin of safety as expressed in minimal lethal doses found experimentally in animals. Since man may be more susceptible to the action of barbiturates than most animals any dosage which approaches 50 per cent of the minimal lethal dose for animals used to induce degrees of surgical anesthesia in man therefore constitutes a potential source of danger. As far as it has been determined experimentally, barbital or veronal carries the widest safety margin which narrows itself down to about one-third when amytal (iso-amylethyl barbituric acid) and neonal (cyclohexenylethyl barbituric acid) are reached.

PURPOSE OF THESE STUDIES

Because of these factors we have recently undertaken a detailed study of the immediate and more distant effects of the barbiturates on women when given in sufficient amounts to induce deep hypnosis as a preliminary to inhalation anesthesia. Through the courtesy of Eli Lilly & Company, sodium isoamylethyl barbiturate (hereafter designated as sodium amytal) has been furnished us as part of the material for this study. Since recently there has been aroused a good deal of interest in the action of this particular barbiturate, we wish to make a preliminary report on a comparative study involving fluid intakes and outputs and sulphophenolphthalein excretions in surgical and obstetrical patients.

I. ITS USE IN TWO SURGICAL GROUPS

This study covers approximately fifty patients undergoing major operations of a similar nature and severity divided into two fairly equal groups. In one group we used as a preliminary to nitrous

oxid anesthesia, sodium amytal and morphin, and in the other scopolamin and morphin.

About one-half hour before operation Group A received, according to body weight, up to fifteen grains of sodium amytal by mouth on the basis of one-tenth grain per pound of body weight, or an equivalent amount by intravenous administration according to the blood-pressure reactions. In addition, one-sixth to one-fourth of a grain of morphin sulphate was given hypodermically prior to taking the patient to the operating room. Except for the ability to gauge the dose slightly more accurately by intravenous administration, we did not see any material difference in the hypnotic end reaction except that after oral administration it took from five to ten minutes longer for deep hypnosis to appear and to take longer to wear off in the postoperative period.

In Group B one three-hundredth of a grain of scopolamin hydrobromid (Roche) was given hypodermically one hour before the operation and repeated in thirty minutes. In addition, one-sixth to one-fourth of a grain of morphin sulphate was administered prior to sending the patient to the operating room. Operations were then carried out under nitrous oxid inhalation anesthesia with an occasional small amount of ether added. With few exceptions all patients of the two groups received normal salt solution by hypodermoclysis during the operation in order to secure a fluid balance. Fluid intake and output was then checked for three days and supplemented with sulphophenolphthalein readings whenever feasible.

After allowing for all possible variations created by age, and by length and severity of operation, our results were briefly as follows. Because of the limited space here, the detailed figures and curves shown in our study will appear elsewhere.¹

OBSERVATIONS

1. Patients having received sodium amytal and morphin as a preliminary to inhalation anesthesia decidedly take in more fluid on the day of operation than patients having received scopolamin and morphin. At the same time the urinary output is actually and relatively decreased in the sodium amytal group.

2. Our figures show further that sodium amytal patients take fluid by mouth more readily on the day of and the day following the operation because of the greater freedom from nausea.

3. On the day following the operation the fluid intake in both groups reaches fairly equal levels, but the ratio of output again presents a lower average in the sodium amytal group. At the same time the output at times exceeds the intake in the scopolamin group.

4. On the second day after operation the fluid intake of the sodium amytal group rises above the scopolamin group, now also presenting an occasional greater output than intake. The ratio of output to intake in both groups now reaches similar levels.

5. Hoping to find the reason for these phenomena pointing to glomerular inactivity we investigated the sulphophenolphthalein excretion of

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patients of these two groups as well as in others. The "normal" for the individual patient was established before the operation. Variations were studied on the evening of the operation day and on the following day.

Allowing for all the possible factors which might influence these tests, we failed to find any striking differences between the sodium amytal and the scopolamin groups. There is a marked drop from the accepted "normal" on the day of operation in both groups, which is slightly greater in the sodium amytal group. The dissimilarity between the groups is so small that it must be disregarded, particularly so since on the day after operation the sulphophenolphthalein excretion approaches the accepted "normal" with equal promptness in both groups.

II. ITS USE IN PREGNANCY GROUP

We have studied the sulphophenolphthalein excretion in pregnant women during and following labor in twenty controls and twenty-one sodium amytal patients. The latter received from six to seven and one-half grains intravenously in the advanced first stage of labor, followed by supplementary nitrous oxid analgesia during the second stage. For obvious reasons studies of fluid intake and output were unsatisfactory and therefore discontinued. A comparison of the two groups studied here indicates that sodium amytal in the dosage given does not influence the glomerular activity of the kidney as expressed in per cent of sulphophenolphthalein excretion.

CONCLUSIONS

Sodium amytal and morphin, when given in sufficiently large doses to produce prolonged hypnosis, seems to allow a greater fluid intake by surgical patients on the day of and the day following the operation when compared to a similar group of patients having received scopolamin and morphin. On the other hand, urinary output is actually and relatively decreased in the sodium amytal group, more marked on the day of operation, but in neither case sufficiently marked to constitute a potential danger to the patient. It is interesting that in some instances output rises over intake in scopolamin patients twenty-four hours ahead of sodium amytal patients.

Sulphophenolphthalein excretions observed in a similar study are so slightly, if at all, influenced by sodium amytal that we may disregard the difference. Similarly, the results of this test during and after labor show no changes in sulphophenolphthalein excretions in patients having received from five to seven and one-half grains of sodium amytal intravenously.

We may therefore conclude that sodium iso-amylethyl barbiturate when given orally or intravenously, while it apparently depresses urinary output, does not constitute a menace in the patient whose kidney function is otherwise normal.

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TRIBROMETHANOL AS A PREOPERATIVE NARCOTIC*

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TRIBROMETHANOL was discovered by Willstaetter and Duisberg during the reduction of bromal at the I. G. Farben-Industrie, Elberfeld, and was called by them "Avertin" or "E-107" as a trade mark. Chemically it is ethyl alcohol with three bromin atoms introduced into the formula or $\text{CBr}_3\text{-CH}_2\text{-OH}$, and should be called tribromomethyl alcohol or tribromomethanol.¹ The substance itself is a white crystalline powder which is soluble in water up to $3\frac{1}{2}$ per cent at 37 to 40 degrees Centigrade. At a higher temperature the drug is decomposed, breaking down into hydrobromic acid and dibromacetaldehyd. This latter substance is highly injurious to the intestinal mucosa. Care must be taken in preparing the mixture that the water is not warmed over 40 degrees Centigrade. In all of the early experimental work the drug in powder form was used, and as quite a few deaths were reported, it was decided to dispense it in liquid form, thus simplifying the technique of preparation and lessening the danger of errors in weighing out the individual dosages. The so-called "Avertin-Fluid" is a solution of tribromomethanol in amylene hydrate (itself a narcotic); one cubic centimeter of the "fluid" contains one gram of tribromomethanol. This solution is extremely sensitive to air, light and heat, and must be kept tightly corked in dark bottles.

REPORTS ON TRIBROMETHANOL

After tribromomethanol was discovered, it was subjected to tests and experimentation on animals before any use of it was made in human beings. The drug was then given out to different clinics for experimental use and was not available generally until one hundred thousand cases had been reported. The great mass of literature available on the subject is therefore largely in German. During the last year several articles have appeared in the English and Irish literature, but as yet no report on administration of the drug or a series of cases has appeared in American literature. It is because of the newness of the drug and the scarcity of reports in this country that we dare report so small a series as twenty-five cases, knowing full well that no true statistics can be tabulated therefrom, and only the general conclusion of caution drawn.

The early reports were full of enthusiasm for the drug not only as a narcotic but as an anesthetic. Subsequent reports bear more and more the note of caution. At the present time it is apparently agreed that the drug should be used as a "basal anesthetic" to obtain preoperative narcosis only, and should not be relied upon as the sole anesthetic agent. The danger of a fatal out-

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come is too great when the dosage is increased and the administration pushed to complete anesthesia.

DOSAGE AND ACTION

The dosage of the drug is calculated on the body weight of the patient in kilograms, and most of the reports from the continent advocate from 100 to 150 milligrams per kilogram. We feel that these figures are unnecessarily high, for Anschutz² mentions the report of a death within thirty minutes after a dosage of 125 milligrams per kilogram, while McWilliams and Wilson³ report a death with a dosage of only 100 milligrams per kilogram. On the other hand, there are reports of apparent safety with dosages as high as 175 milligrams per kilogram. In our small series we have set 90 milligrams per kilogram as a maximum dosage with 80 milligrams per kilogram as average and have had satisfactory results, using as low as 70 milligrams per kilogram. In this day and age of safe anesthesia one death in ten thousand administrations is nothing short of criminal, and no drug or dosage of a drug should be used that will increase that percentage. Morrin,⁴ desiring to obtain complete anesthesia, advocates the administration of the drug by fractional dosage. He starts with 100 milligrams per kilogram and, if sensitive to pain, in fifteen minutes gives a further dosage of 25 milligrams per kilogram, and states that in practically every instance this dosage is sufficient. If in ten minutes more the patient is not anesthetic an additional 25 milligrams per kilogram may be added. This maximum should be required but rarely, and should never be exceeded. However, in our opinion, his initial dose is too high and the practice of giving additional small doses is dangerous.

Tribromethanol has been used intravenously and by mouth, but experience has shown that when it is given by rectum the best results are obtained. It is very rapidly absorbed by the mucous membrane, being much more rapidly absorbed than the water in which it is in solution. So rapidly in fact that 80 per cent of it is gone in the first twenty minutes and 95 per cent in two hours. In from six to ten minutes the patient becomes very drowsy and drops into a deep sleep, without any stage of excitement. The blood pressure may fall a few points and the breathing become more shallow. Cyanosis may be noted, but is thought to be due to the falling back of the tongue since if an airway is inserted or the chin held up, cyanosis does not occur. Some German reports state that cyanosis is the rule and may be due to the larger dosage used, or to the fact that morphin was used in combination, for we did not notice cyanosis in our series.

After being absorbed from the rectum, tribromethanol is present in the blood, becomes detoxicated by combining with glycuronic acid in the liver and is eliminated as such by the kidneys. Straub, as reported by Guttman,⁵ recovered 81 per cent of the administered drug in the urine

and traces of bromin were found in the perspiration, but none were found in the feces or in the expired air. Because of the detoxication of the drug in the liver, its use in organic liver disease is contraindicated. There seems, however, to be considerable discussion concerning its use in obstructive jaundice and many authors feel that the mere presence of icterus is not necessarily a contraindication. With its elimination by the kidneys a transient irritation occurs, and hyaline casts and red cells appear in the urine. Though they disappear completely in a few days, this result is a sufficient cause for contraindication to its use in kidney disease. It is not, in the least, eliminated by the lungs and no untoward effects have been demonstrated in the lungs. Tribromethanol is, therefore, recommended in lung surgery and for operative patients suffering from tuberculosis.

At first no means of speeding the detoxication of the drug was known. The bromin is in an organic combination in the molecule and cannot be reached or detoxicated by the administration of chlorids. It was later noted that patients suffering from hyperthyroidism withstood large doses very well and awoke from moderate dosages much more rapidly than the ordinary patients. It was suggested by Lendle, Bromfield, Shipway⁶ and Edwards⁷ that the administration of thyroxin to patients who slept overlong might aid in the elimination of the drug. Pribham⁸ reports gratifying results in the use of thyroxin and at present this is the only known antidote, if such it may be called.

EFFECTS ON VARIOUS SYSTEMS AND ORGANS OF THE BODY

One of the early effects noted was an irritation of the rectal mucosa, apparently not due to tribromethanol itself but to a faulty preparation of the mixture and to overheating of the water which caused the production of dibromacetaldehyd. Aside from the factor of irritation of the mucosa it is probably wiser not to use the drug in ulcerative colitis, severe hemorrhoids or in carcinoma of the rectum, because it is even more rapidly absorbed from a raw area.

The respiratory center may quite frequently be affected, the respirations may decrease in number but usually are slightly increased and become more shallow in excursion. The smaller the dosage the less effect is seen and all who reported respiratory embarrassment used a dosage of 100 milligrams per kilogram or more. If the dosage is pushed far enough, respiratory paralysis and death ensue. When morphin is used in conjunction with tribromethanol, the respiratory change is more marked. Respiratory embarrassment should be treated with the administration of carbon dioxid. Because of this effect on the respiratory center we do not recommend its use in brain surgery.

A reduction in blood pressure is noted directly after the injection and comes on with the relaxation and deep sleep of the patient. With the dosages that we have used this drop has never been

alarming, representing only the normal drop of physiological sleep and the elimination of psychic factors. When supplemental anesthetic agents were started and the operation commenced the blood pressure again assumed the former level and maintained it throughout the operation. On an average the drop in systolic pressure was from 15 to 20 millimeters. Should the drop in blood pressure become alarming, caffein and ephedrin may be used.

Though it is stated in the experimental work that no effects were noted in the heart, pulse rate or blood pictures, there has been one death reported, with fatty degeneration of the liver, heart, and kidneys. In large doses tribromethanol, like ether and chloroform, produces acidosis (Killian^{9 10}).

PROCEDURE AND TECHNIQUE

On the continent there is a difference of opinion concerning the use of morphin with tribromethanol; some clinics recommend from one-sixth to one-third grain of morphin, or its equivalent in some other form of opium, and some recommend that no morphin be used at all. No enema is given the morning of the operation because some fluid may be retained and could thus dilute the dosage intended or the rectal mucosa could become irritated. In twenty minutes to a half-hour the operation can be started and a small amount of supplemental anesthesia be used. In Europe, ether is most often chosen and the amount necessary is very much less than is required in any other type of combined anesthesia. Frequently the patients sleep 24-48-72 hours and experience no postoperative pain, nausea, or vomiting.

In our series we did not use any form of morphin or any of the lesser hypnotics, as we wished to find out the true value of the tribromethanol unaided by other drugs. To illustrate the procedure in detail: For a patient weighing 65 kilograms, to whom we desire to give 80 milligrams per kilogram, the dosage of tribromethanol would be 5.2 grams or 5.2 cubic centimeters of the "Avertin-Fluid." This amount is accurately measured in a pipette and put into a flask containing 173 cubic centimeters of distilled water which has been heated to 38 to 40 degrees Centigrade. The flask is vigorously shaken for about a minute until the mixture (a three per cent solution of tribromethanol in distilled water) is in solution. A few cubic centimeters are then removed and tested with a few drops of 1:1000 solution of Congo red. If the color remains red, the solution is suitable for injection. If the slightest tinge of blue color appears, the tribromethanol has decomposed and the solution must be discarded, for hydrobromic acid and dibromacetaldehyd are present. Being careful that the solution does not cool below 37 degrees Centigrade, the mixture is poured into a large triumph syringe connected to a rectal tube and is injected into the rectum. The rectal tube may be left *in situ* if desired and a clamp placed

on it, so that, should any untoward effects be noted, the clamp can be released, the solution withdrawn and the rectum irrigated with water. However, the rate of absorption is so fast that by the time any bad effects are noted most of the tribromethanol has disappeared from the rectum. Nevertheless it has been noted that the after-sleep can be shortened by removing from the rectum that small portion still unabsorbed at the end of the operation. In about six to ten minutes the patient becomes very drowsy, yawns, stops talking, and has the appearance of being unable to stave off sleep any longer. The patient in his bed is taken to the operating room, and often will rouse a bit when transferred to the operating table and, if questioned, may answer quite rationally. While the surgical field is being prepared he may attempt to draw away from the cold alcohol and will always move if a hypodermoclysis is started. Before the actual surgery is commenced, nitrous oxid and oxygen is started, in every case in our series the oxygen percentage being maintained at 18, 20, or 25 per cent; the color throughout was always the brightest pink and at no time was the slightest cyanosis allowed to appear. The blood pressure was taken at the time the injection was made; and in many of the cases after sleep or the drowsy state appeared, it showed a drop of from 10 to 20 millimeters of mercury, but after the establishment of the nitrous oxid-oxygen and the operation was begun, the blood pressure was back to the former level and remains so throughout the operation. In only one instance did the respiratory rate drop and with this patient it was reestablished at the normal rate when the operation started. On the other hand, most of the patients showed an increase in respiratory rate with some slight diminution in excursion. No effect was noted on the pulse rate. Six of our patients did not appear to go to sleep before going to the operating room. They were somewhat drowsy but continued to talk until the nitrous oxid was started, yet not one of them remembered anything beyond a few moments after the injection.

COMMENTS ON SERIES REPORTED

Our series is as limited as it is because we wished to make use of the tribromethanol only when it was indicated or when we could personally superintend the administration. It is not a drug that can be administered indiscriminately, and only persons directly responsible should take charge. Most of the patients in this series had had previously bad surgical experiences and dreaded this particular operation greatly. Our series may be divided surgically as follows:

Laparotomies	11
Plastic on face	7
Osteomyelitis	1
Thyroidectomies	5
Breaking up of post-traumatic adhesions in shoulder joint	1
	25

A local anesthetic in conjunction with the tribromethanol for a plastic operation was not entirely satisfactory because the patient was narcotized to such extent that coöperation was poor and not sufficiently narcotized to remain absolutely quiet. Other patients who had plastic operations were anesthetized with ether, a very small amount only being needed to keep them quiet. Two patients had two operations each with tribromethanol and both were very enthusiastic about it. The remaining operations were supplemented with nitrous oxid and oxygen, and of these, two (laparotomies) needed a very small amount of ether also, when the exploration was done. All but one patient were fully conscious within six to seven hours after the injection was made; many were conscious in a much shorter time. The one exception was a patient who slept for fifty-six hours postoperatively, during which time she could be aroused to take water and answer questions, but she said she recalled nothing from the time of the injection until fifty-six hours later. No ill effects were noted from this protracted sleep.

This patient later returned to the hospital complaining of paralysis, and was thoroughly examined by the neurological and medical staff with a final diagnosis of hysteria. Possibly her long sleep and semi-consciousness were partly the result of her general nervous reaction.

The average patient having been given his dosage of tribromethanol at 8 a. m. would become drowsy within ten minutes and drop off into a rather deep sleep, from which he could be aroused somewhat by painful stimuli. The nitrous oxid-oxygen or ether would be started about 8:30 a. m.; the operation following immediately would then be finished in the neighborhood of 10 a. m., gas mask removed, the patient would seem to waken normally and talk rationally, but on the following day when questioned would say that he remembered nothing from the time of injection until about 2 o'clock in the afternoon. With the smaller dosage and the more rapid awakening from the deep sleep, patients did not experience the freedom from postoperative pain that the European clinicians report. It was necessary to use morphin to control this pain in some instances. This was probably due both to the smaller dosage of tribromethanol used and to the fact that no morphin was given preoperatively. We still feel, however, that the morphin should not be given before operation and that the tribromethanol should have its effect alone, and that after its effectiveness is over, morphin or lesser sedatives may be indicated.

One patient in our series died sixty hours postoperatively of massive pulmonary atelectasis. She had a cholecystectomy and at operation many adhesions were found in the upper abdomen from a previous laparotomy. She regained consciousness from the tribromethanol and developed signs of lung collapse. In spite of postural treatments and carbon dioxid administrations, she died.

From literature concerning the action of tribromethanol we could not feel that the drug was the cause of death.

DISADVANTAGES OF ADMINISTRATION

Granted its limitations and contraindications, in certain diseases there are further disadvantages in its general use. There are decided disadvantages in the calculation of dosage by body weight alone, for one person sleeps for fifty-six hours on a dosage of 90 milligrams per kilogram, another does not appear to sleep at all on the same dosage. Still another dies in thirty minutes with a dosage of 100 milligrams³ per kilogram and another one dies with a dosage of 125 milligrams per kilogram,² while there are many successful administrations recorded with a dosage of 175 milligrams per kilogram. With such a discrepancy in results one must proceed with great care and we feel should not exceed the dosage of 90 milligrams per kilogram. In addition to this the detail and care in its preparation limit its use to the one or two individuals responsible. It works out very satisfactorily for the first operation in a morning, but in a large operative clinic, with case following case in rapid succession, the administration of tribromethanol is too time-consuming, a half-hour at least being necessary to prepare the dosage, inject the drug and bring the patient to the operating room. Its application I think will be limited to those nervous patients who require special care and will not become a routine procedure for every surgical patient.

SUMMARY

In conclusion we found: That all fear of the operating room was eliminated. That even though some of the patients did not actually fall into a deep sleep, they remember nothing after the injection of the drug. That there was a deeper relaxation of the patient than with other usual preoperative drugs. That in the patients when ether was used with tribromethanol a very small amount only was needed to maintain the proper level of anesthesia. That when nitrous oxid oxygen was used, a very high percentage of oxygen could be maintained and the patients kept pink, while they were sufficiently relaxed for gall bladder, gastric and pelvic surgery, and that only two patients required the addition of ether to the nitrous oxid-oxygen sequence. That because tribromethanol does not affect the heart and that a high percentage of oxygen can be used in nitrous oxid-oxygen mixture and that the patients are never cyanosed, it can be of great value in anesthetizing thyroid patients and patients with myocardial damage. That great care must be used in preparation of the dosage of the drug. That with the dosages used no untoward effects were noted on the blood pressure or respiration. That the patients were unanimous in agreeing that it was the best surgical experience they had ever had.

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HAY FEVER PLANTS OF UTAH

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DURING the past year a rather complete survey of the hay fever plants of Utah was made. This was done in order to have a comprehensive knowledge of such plants, the seasons of pollination, and their general distribution. Incidentally, collection of pollens was made of the more important plants.

A wide variation of plants was found—from those in the rather moist valleys of the northern part of the state to the more arid country in the south. Saline soils in the region about Great Salt Lake have a plant life adapted to those conditions. For this reason, Great Salt Lake Valley has the greatest variation of plant life of any valley in the state.

Altitude is also an important factor in distribution. Because of the great variations in altitude throughout the state, there is also a great variation in the plant population. Some of the valleys in the southern part of the state, because of their altitude, have a flora similar to that in the northern part.

THREE MAIN GROUPS OF UTAH HAY FEVER PLANTS

Many of the plants observed are relatively unimportant in the production of hay fever, but when present in sufficient quantity they undoubtedly produce symptoms in susceptible persons.

Three general divisions might be made of hay fever plants:

1. Trees and shrubs and willows in the spring.
2. Grasses in late spring and early summer.
3. Weeds, sage and rabbit brush, etc., in late summer and fall.

In Group 1, the most important is box elder. Due to numerous box elder trees throughout the

state, hay fever from this tree is rather common. Also, the pollen itself seems to cause symptoms more readily than does pollen from such trees as the ash, cottonwood, and willow. The season is from early in April into the first part of May.

In Group 2, orchard grass, June or blue grass, timothy, salt grass, and redtop—in order—are probably the more important. The season starts in May and extends into July for certain ones, being somewhat longer than that of the trees, but is usually equally severe.

Group 3 is the most important of the three divisions. This group includes such plants as Russian thistle, sagebrush, common ragweed, pickle weed, etc., named in order of their importance. This group has a season, starting in May with four-winged saltbush (*Atriplex canescens*) and ending with the common sagebrush (*Artemisia tridentata*) in September and October. Greasewood (*Sarcobatus vermiculatus*), although not important as a hay fever plant, pollinates during the latter part of May, all of June and July, and the first part of August.

Fruit trees undoubtedly cause a certain amount of trouble. Due to the short season, however, unless the symptoms are very severe, symptomatic treatment is preferable. Should the person be sensitive to some other pollen, the extract from the fruit tree pollen could easily be included in the treatment.

Dandelion (*Taraxacum officinale*) causes rather severe hay fever in a few individuals, particularly such persons as gardeners, farmers, etc., who come into very close contact with the plant. The pollen grain is very sticky and requires that a person be in rather close contact with the plant in order for it to produce symptoms.

Swamp grasses (*Carex spp.*), cat-tail (*Typha latifolia*), bulrush (*Scirpus spp.*), form a group which pollinates heavily but seems to cause very little hay fever.

Such plants as the dock, mustard, bee plant, and clover, although common, cause very little trouble. Rabbit brush has a rather sticky pollen which blows about very little, and is not a great factor in hay fever production in most parts of the state.

The ragweed (*Ambrosia elatior*), although causing severe symptoms in some patients, is not the important hay fever plant that it is in the Middle West.

Alfalfa (*Medicago sativa*), white sweet clover (*Melilotus alba*), and yellow sweet clover (*Melilotus officinalis*) have blossoms in which the pollen is enclosed, as in the sweet pea. They cause hay fever due to the dust they produce when dry and used as hay, the same as any dust will produce symptoms in hay fever patients. It may be, however, that in the dry and pulverized state, the blossoms liberate their pollen and produce hay fever in susceptible persons.

Sagebrush (*Artemisia tridentata*) and Russian thistle (*Salsola pestifera*) are the two worst late summer and fall hay fever plants. The pollination seasons are long, the plants are abundant

and have a wide distribution. The pollen is light, will blow for many miles, and seems to produce symptoms much more readily than the pollen from such plants as the red root (*Amaranthus retroflexus*), greasewood (*Sarcobatus vermiculatus*), or lambs quarter (*Chenopodium album*).

It might be added that the use of local pollens in the treatment of hay fever has proved more satisfactory than imported extracts.

The following table gives the list of plants observed, common and scientific names, and the season of pollination.

TABLE 1.—*Utah Hay Fever Plants**

Common Name	Proper Name	Season
Gramineae		
*Orchard grass (C)	<i>Dactylis glomerata</i>	May-June
Blue grass		
(June grass) (C)	<i>Poa pratensis</i>	May-July
Red fescue	<i>Festuca rubra</i>	May-June
Meadow fescue (C)	<i>Festuca elatior</i>	May-June
Wheat grass	<i>Agropyron</i>	
	<i>pseudorepens</i>	May-June
Wheat grass	<i>Agropyron</i>	
	<i>subvillosum</i>	May-June
Slender wheat grass	<i>Agropyron tenerum</i>	May-June
Timothy (C)	<i>Phleum pratense</i>	June-July
Redtop (C)	<i>Agrostis alba</i>	June-July
Field brome (C)	<i>Bromus inermis</i>	June
Large brome	<i>Bromus marginatus</i>	June
Salt grass (C)	<i>Distichlis spicata</i>	June-July
Giant wild rye	<i>Elymus condensatus</i>	July
Paspalum (C)	<i>Paspalum setaceum</i>	June
Corn (C)	<i>Zea mays</i>	June-July
Grasslike Plants		
Short bulrush (C)	<i>Scirpus paludosus</i>	May-June
Tall bulrush (C)	<i>Scirpus americanus</i>	June
Meadow sedge (C)	<i>Carex</i> spp.	May
Cat-tail (C)	<i>Typha latifolia</i>	June-July
Baltic rush (C)	<i>Juncus balticus</i>	June
Spike rush	<i>Eleocharis acicularis</i>	May-June
Urticaceae		
Stinging nettle (C)	<i>Urtica holosericea</i>	July
Polygonaceae		
Curled dock (C)	<i>Rumex crispus</i>	May-June
(Red dock)	<i>Rumex hymenosepalus</i>	June
(Western dock) (C)	<i>Rumex occidentalis</i>	June
Chenopodiaceae		
Fireball (C)	<i>Kochia scoparia</i>	July-August
Lamb's quarters (C)	<i>Chenopodium</i>	
	<i>album</i>	July-August
Mexican tea (C)	<i>Chenopodium</i>	
	<i>ambrosioides</i>	July-August
Oak-leaved goose-foot (C)	<i>Chenopodium</i>	
	<i>glaucum</i>	July-August
Four-wing saltbush (C)	<i>Atriplex canescens</i>	May-June
Shadscale (C)	<i>Atriplex confertifolia</i>	June
Saltbush	<i>Atriplex cuneata</i>	June
Halberd-leaved orache (C)	<i>Atriplex patula</i>	
	<i>hastata</i>	June-July
Saltbush	<i>Atriplex truncata</i>	June-July
Greasewood (C)	<i>Sarcobatus</i>	
	<i>vermiculatus</i>	May-July
Pickleweed (C)	<i>Allenrolfea</i>	
	<i>occidentalis</i>	July-August
Winterfat (C)	<i>Eurotia lanata</i>	June-July
Russian thistle (C)	<i>Salsola pestifera</i>	July-August
Seepweed	<i>Dondia erecta</i> (<i>Suaeda</i>	
	<i>erecta</i>)	June-July
Seepweed (C)	<i>Dondia torreyana</i>	
	(<i>Suaeda moquinii</i>)	June-July
Amaranthaceae		
Pigweed (C)	<i>Amaranthus</i>	
	<i>retroflexus</i>	July-August
Brassicaceae (Cruciferae)		
Black mustard (C)	<i>Brassica nigra</i>	June-July
Leguminosae		
Alfalfa (C)	<i>Medicago sativa</i>	June-August
White sweet clover (C)	<i>Melilotus alba</i>	July-August
Yellow sweet clover	<i>Melilotus officinalis</i>	July-August
Plantaginaceae		
Plantain	<i>Plantago lanceolata</i>	June-July
Compositae		
Common sagebrush		
(C)	<i>Artemisia tridentata</i>	Sept.-Oct.
(Gray) Sage (C)	<i>Artemisia wrightii</i>	Aug.-Sept.
Aromatic sagebrush		
(C)	<i>Artemisia aromatica</i>	Aug.-Sept.
Sunflower	<i>Helianthus annuus</i>	July-Aug.
Cosmos (C)	<i>Cosmos bipinnatus</i>	July-Aug.

* The more important plants in Tables 1 and 2 are printed in italics.

* C—pollens collected.

Common Name	Proper Name	Season
Lanceleaf yellowbrush	<i>Chrysothamnus lanceolatus</i>	Aug.-Sept.
Rubber rabbit brush		
(C)	<i>Chrysothamnus</i>	
	<i>nauseosus</i>	September
Snakeweed (C)	<i>Gutierrezia</i>	
	<i>microcephala</i>	Aug.-Sept.
Common ragweed (C)	<i>Ambrosia elatior</i>	Aug.-Oct.
False ragweed (C)	<i>Franseria tenuifolia</i>	Aug.-Oct.
(Prairie ragweed) (C)	<i>Iva xanthifolia</i>	August
Poverty weed (C)	<i>Iva axillaris</i>	June-July
Dandelion (C)	<i>Taraxacum officinale</i>	
	($\pm$ <i>Leontodon</i>	
	<i>taraxacum</i>)	May-June

TABLE 2.—*Utah Hay Fever Trees*

Common Name	Proper Name	Season
Salicaceae		
Peachleaf willow	<i>Salix amygdaloides</i>	April
(Yellow) willow	<i>Salix lutea</i>	April
Sandbar willow	<i>Salix exigua</i> ($\pm$ <i>Salix</i>	
	<i>fluvialis</i>)	June
Willow (C)	<i>Salix scouleriana</i>	April-May
Black willow	<i>Salix nigra</i>	April
White poplar	<i>Populus alba</i>	April
Narrowleaf cottonwood (C)	<i>Populus angustifolia</i>	April-May
Lanceleaf cottonwood	<i>Populus acuminata</i>	April-May
(Sargent) cottonwood	<i>Populus sargentii</i>	
	($\pm$ <i>Populus occidentalis</i>)	April
Eastern cottonwood	<i>Populus deltoides</i>	April
Carolina poplar (C)	<i>Populus eugenei</i>	April
Lombardy poplar	<i>Populus nigra italica</i>	April
Quaking aspen (C)	<i>Populus tremuloides</i>	May
Bolle poplar	<i>Populus alba bolleana</i>	April
Betulaceae		
Rocky Mountain birch		
(C)	<i>Betula fontinalis</i>	May
Fagaceae		
Scrub oak (C)	<i>Quercus gambelli</i>	May
Rosaceae		
Apple (C)	<i>Malus</i> spp.	May
Aceraceae		
Mountain maple (C)	<i>Acer grandidentatum</i>	April
Box elder (C)	<i>Acer negundo</i>	April

115 East Temple Street.

POSTENCEPHALITIC PAROXYSMAL OCULOGYRIC CRISES*

REPORT OF CASES

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AND
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DISCUSSION by Thomas G. Inman, M. D., San Francisco; William L. Bender, M. D., San Francisco; Arthur E. Mark, M. D., Los Angeles.

THE sequelae of epidemic encephalitis are many and varied. One in particular is now receiving considerable attention in the literature, and its rarity, or rather lack of recognition, has caused it to be described as a "new eye syndrome" (Pardee¹). This is the paroxysmal oculogyric crises of conjugate deviation of the eyes accompanied by certain psychic compulsory phenomena very similar to, and often confused with hysteria. Three of these remarkable cases have been under our observation over a year, and the patients have been frequently observed during their attacks. Two of these are the first to have received large doses of stramonium, as far as can be discerned from the literature.

HISTORICAL

These tonic eye spasms have received no attention in this country until recently. In May 1928,

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Pardee¹ stated that only thirty-seven such cases were on record. A few months later twenty-three cases were reported in *Brain* (McCowan and Cook²), and it was stated that the condition had been recognized for little more than three years.

During the early months of 1929, Jelliffe³ completely reviewed all known cases and reported two hundred. He pointed out that an accurate description of an attack was made in 1695. It is of sufficient interest to include here: "In the year 1695, a maiden of this place, about twenty years old, daughter of the honest citizen I. F., fell into a continued fever characterized by acute headache, dryness of the mouth and other symptoms usually noted in maladies of this kind, of which, in this subject, the most notable was an extraordinary propensity to sleep, which, in proportion as the headache remitted, became more and more pronounced—in such wise that as often as the patient was awakened, the relapse into slumber was the more profound. In the period of temporary improvement of health, there was plainly noted a distortion of the eyes which propelled the pupil toward the upper eyelid, showing the white of the whole half of the lower eyeball."

There are many descriptions of unusual ocular manifestations previous to this time which may well have been postencephalitic complications of the same nature as the now well-described oculo-gyric crises. There is no doubt that the condition is not a new one, nor is there any doubt that it is fairly common. The eye tics, with their associated compulsory phenomena, have been classified as hysteria, and consequently their real significance has been missed. More and more articles are appearing on the subject which emphasize the fact that these ocular sequelae are to be found in any large group of postencephalitic Parkinsonian patients, and that only a knowledge of their existence is necessary to identify them.

Jelliffe has not only brought all the cases together, but lucidly traces the development of the various observers' consciousness of the complete syndrome. At first the eye tic was simply noted as a postencephalitic complication. Other muscle spasms, such as the retraction of the head, were found to be frequently associated, and very gradually it became clear that certain psychogenic compulsion phenomena were also associated. The author emphasizes that the whole picture is due to a compulsion mechanism, and that the manifestations are extremely important as an approach to subconscious material. Any report of oculo-gyric crises should include the compulsory ideas and, if ascertainable, the purpose behind the compulsion impulse.

SYMPTOMATOLOGY

For the sake of description the symptoms may be divided into three groups—the eye spasms, the compulsion ideas, and extra-ocular tonic muscle spasms. The first two are probably always in the syndrome, although the fixed ideas may be present themselves as a separate phenomenon. The muscle spasms may be flexor, extensor, or

torsion in character. They are occasionally absent, but may obtrude themselves in a great variety of ways. They are usually confined to the head and neck. The acuteness of the original illness and the length and extent of the chronic involvement have no relation to the incidence and severity of the crises.

Eye Spasm Symptom Group.—The eye spasm is often preceded by a dull ache or sensation of heaviness through the frontal region, and occasionally by pain in the orbit itself. The eyes suddenly become fixed in a stare, their position varying in different cases but remaining fairly constant for any one given case. They most frequently gaze upward and slightly to the right or left, the downward position is much less common. The spasm may be to the right or to the left, and cases have been described which look straight ahead. Rarely is there convergent or divergent deviation. A shift from one position to another sometimes takes place. During an attack many patients can voluntarily move their eyes with a strong effort, but they quickly return to their position.

These eye spasms come on every few days, but may recur in a few moments, or be absent for months in the beginning. They tend to start at about the same hour, commonly in the late afternoon or evening, and may be extraordinarily punctual in their appearance. This suggests fatigue as a factor, and this has been well borne out as it is noted by all observers. Emotional stress may also bring on an attack. Many attacks run a course which cannot be influenced. However, a few tend to be shortened or aborted by lying in the prone position. A respite from the spasm is obtained only after falling asleep. They may last from a few seconds (when they frequently go unnoticed) to many hours, or may occur throughout a whole day with only a few short interruptions. They commonly last a few hours, but their duration frequently increases after months or years, so that many patients become greatly discouraged.

Compulsion Idea Symptom Group.—The psychogenic aspect of the syndrome has often been overlooked. Preceding the eye spasm the patient frequently becomes highly emotional and is often described as hysterical. There may be shouting, screaming, obscene cursing, and the like, as a primary release manifestation when the check control of the usually orderly conscious is first removed. This is followed by fixation of the eyes and the compulsion ideas, which are startling in their substance and their persistence. These unfortunate individuals are no more able to control these thoughts than they are their eye spasms. The ideas are unpleasant and disturbing and may be very alarming to the patient. The sensation of impending dissolution is a common one, and has been compared to the same fear occurring in angina pectoris. Ideas of fear, anxiety, anguish, death, wishing for the dark, wishing for sleep, repetition of the same letters, numbers or phrases, have all been noted. Some patients are forced

to think of sexual subjects, and some have frank hallucinations. There are patients whose mental state is so retarded that they are unable to give any reliable information as to what passes through their minds during attacks.

Extra-Ocular Tonic Muscle Spasm Symptom Group.—The occurrence of extra-ocular muscle spasms is not uncommon as part of the syndrome, and they may involve the head, neck, trunk, or extremities. The most frequently described spasm is the retraction of the head. In other cases it may be turned to either side, or flexed on the chest. This last position when combined with upward gaze has been called "the French doll eye situation." Torsion spasms, involving an arm or leg or the trunk, are infrequent, but may produce bizarre attitudes, adding to the grotesqueness of the picture. All these tonic contractions tend to maintain the same direction as the ocular fixation.

PATHOGENESIS

In chronic encephalitis there is a diffuse lesion of the basal nuclei and adjacent gray matter, producing the commonly recognized features of Parkinsonism, and other less common phenomena such as the rhythmical myoclonias and hyperpnea. These lesions may interfere to a greater or lesser degree with the cortical inhibitory control of the subcortical centers. Such a cortico-nuclear disintegration would pervert or destroy the check influence of the higher centers, giving rise to the so-called release phenomena originating in sensory or motor areas of the basal ganglia.

Such a loss of control over the nuclear centers of the vegetative nervous system is responsible for the remarkable motor features. The emotional or hysterical-like outbursts are due to a similar loss of inhibitory control of the thalamus. The oculogyric crises are probably due to a simultaneous disturbance of inhibition over both motor and sensory components occurring paroxysmally, which permits the domination of certain compulsion stimuli. It has been suggested that the initial disturbance is in the oculogyric center or its pathways, or in the vestibular apparatus, but the concomitant emotional disturbance makes it seem most likely that altered cortical inhibition is the primary cause. The paroxysmal nature of the attacks may depend on altered metabolism, toxic products or cerebrovascular spasms, but at present there is no proof of any of these theories.

REPORT OF CASES

CASE 1.—M. J., American, age thirty-two, single, stationary engineer, had been well except for acute appendicitis in childhood, followed by laparotomy, until he developed influenza pneumonia in 1918. He was delirious with fever for three days and was one month in bed. There was no eye trouble. He was able to work for three years, but gradually grew more and more drowsy. In 1921 his right arm grew stiff and he had difficulty in performing associated movements. Excessive drooling of saliva developed and he lost his position. He was able to do light work in an institution for three years longer, during which time the complete picture of Parkinson's syndrome developed, and his lower jaw drooped and frequently dislocated. He states that a coarse tremor of the

hands and a propulsion gait came on while attending the Holy Roller Church. He has been completely bedridden for the last five years.

Five years ago, at intervals of weeks or months, spasms of the eye occurred. They would become fixed up or down or straight ahead, the staring lasting but a few minutes. Moderate retraction of the head occurred, but was inconstant. The crises gradually increased in frequency and duration until they were occurring about every six days, almost punctually, and lasting some sixteen hours. There is marked accentuation of the tremor during attacks. Just preceding he becomes highly "hysterical" with furious outbursts of crying and screaming and complains constantly that there is something wrong with his ear, his nose, or his genitalia. During the period of eye spasm he repeatedly calls attention by signs to his penis, but does not talk. Ordinarily his mind is quite alert, but he will not discuss his compulsion ideas other than to say that they are very unpleasant and make him feel very bad.

Treatment.—Hyoscin by mouth has helped the rigidity and the tremor to a certain extent, but has not influenced the crises at all. Two courses of malaria therapy produced no beneficial effects. Repeated injections of bulbo-capnin proved of no value. A hypodermic injection of morphin sulphate at the onset of a crisis is of great value in controlling the emotional outbursts, but does not change the usual course of the attack otherwise. The tincture of stramonium in a dosage of twenty minims three times a day produced no noticeable alteration in his condition. However, in larger doses, as, four cubic centimeters given three times a day, not only is the general condition markedly improved, but also the crises. They occur much less frequently and are not so prolonged, and there is little or no emotional disturbance if morphin is used in addition at the beginning of the attack. At present the maximum improvement is best maintained by hyoscin 0.00065 gram orally twice daily, and tincture of stramonium 5 cubic centimeters four times a day, with the use of morphin sulphate 0.01 gram hypodermically as indicated.

Comment.—This patient is intelligent, has a good sense of humor and is usually quite coöperative. He feels that his present treatment has made his attacks much less severe, and that his relief is sufficiently great that he would not voluntarily suspend it.

CASE 2.—J. P., American, single, mechanic, age twenty-eight years, had always been very strong physically and bright mentally. His family history and past history were irrelevant.

In April 1920, shortly after an attack of illness called "influenza," the patient developed a general weakness, a drunken sensation, and noticed that his gait was unsteady and somewhat spastic. He felt nervous, particularly during the day, but at night felt well enough to continue work for a year as a stationary engineer. During this year he developed dizziness, a tendency to fall forward while walking, and a stiffness of his muscles with muscle jerkings which frequently awakened him at night. At the end of this time his condition was diagnosed hysteria by a physician. A rest in the mountains resulted in improvement, but was followed by a relapse. During the second year the nervousness became worse, he found it easier to run than to walk, and while walking his body would gradually bend forward to an angle of almost 90 degrees. All movements became increasingly difficult. A marked blepharospasm appeared and a coarse tremor of his hands developed which, with marked spasticity, soon made it impossible for him to feed himself. His jaw became difficult to open, he commenced to drool, and his speech became slow and monotonous with delayed response to questions. A masklike face was noted.

About two and one-half years after the onset of this illness, he developed spells of involuntary staring in which the eyes became fixed downward or, more frequently, upward and to the left. These were associated with a period of crying either at the onset or following. The attacks lasted only a few minutes at first, but later lasted four to six hours and occurred about every five days. More recently they have occurred every three to four days, lasting about six hours. The eyes become fixed forward and later upward and to the left. They occur most frequently about the middle of the day. There has never been any fixation of the head. During an attack he is nervous and worried, and fears the eye spasm will never terminate. He feels "rotten" and "soft all over" and is in such distress he believes during each attack that he will die. He never speaks during a crisis, and his response is so poor at best it is difficult to get an adequate conception of his thoughts, although he appears to comprehend all questions quite readily.

Treatment.—Hyoscin has always made him worse, increasing the rigidity and tremor, and limiting his already restricted activity. Five intraspinal injections of autogenous blood serum were of no real benefit. Injections of morphin do not improve his ocular spasms. Bulbocapnin has in no way altered his condition. Large doses of stramonium have been quite disappointing in his case. He drools less and is a little brighter and the duration of his crises is occasionally shortened, but he has had the least benefit from Juxter's method of treatment of thirty patients of Parkinsonism so treated.

Comment.—This case is a markedly advanced one, and very little could be expected from any form of treatment.

CASE 3.—H. E. S., American, single, age thirty-five years, until 1920 had been without unusual diseases. His family history was unimportant. During the early months of 1920, while attending university, he was troubled with a severe neuritis of the left knee, associated with physical and mental fatigue, insomnia, restlessness, anxiety, despondency and loss of sexual desire. The following year he suffered from influenza, with marked malaise and diplopia. While in a hospital in 1925 it was noted that he had slow speech with poor articulation, slight tremor of the extended fingers, and retarded thought processes. No other abnormalities were then made out. The diagnosis was epidemic encephalitis, residual.

During his illness the patient has been quite active and able to go about everywhere. However, for six years he has had attacks of typical oculogyric crises with slight retraction of the head and the eyes staring directly up. The attacks always lasted about one hour, but so increased in frequency that they occurred several times a day. Nothing helped him and he grew very depressed. As he was in the country, under the care of his own doctor, large doses of stramonium were not tried. In April 1929 he became so despondent he hanged himself in his closet.

Comment.—It was not possible to make a careful study of this patient's crises, nor to control his treatment. The despondency produced by his condition is emphasized by the fact that he committed suicide.

TREATMENT

Possible measures for alleviating the crises have received scant attention. As some of the patients, such as our Case 3, have committed suicide simply on account of this complication, any drug or combination of drugs which may diminish their suffering is worthy of careful considera-

tion and thorough trial. As with the other sequelae of epidemic encephalitis, hyoscin has been the chief drug relied upon to combat the eye spasms, but it has met with only indifferent success. In certain cases attacks are reported less severe after its use hypodermically, but it is usually not stated which components are improved and to what extent. Many cases receive no relief at all. If the crises are considered in the light of release phenomena, hyoscin could hardly be expected to improve the check control.

Many other drugs have been tried, but few of them need be noted. On the basis that angiospasm initiates an attack, nitroglycerin has received a trial but has yielded no results. Apparently morphin has been used very little. It certainly helps Case 1, as his unpleasant sensations are greatly lessened thereby. Its use should be investigated further. Bulbocapnin is ineffective, judging from our experience up to the present time. Stramonium should be of value for two reasons. First, it improves many of the other complications, particularly the mental lethargy. Second, part of its action may be on the cortical inhibitory mechanism, increasing its function. Large doses must be used to get the maximum beneficial effects, but there is very little experience with this method of administration upon which we may base any conclusions. Stramonium has certainly helped Patient 1, but has done very little for Patient 2. To our knowledge hyoscyamin has not yet been employed.

Undoubtedly certain drugs may be beneficial, but what helps one case may not be of any value to another. For the crises themselves morphin and stramonium would seem to offer the best possibilities, with hyoscin in the background. Each drug should be tried singly and in combination in an endeavor to lessen the suffering of these unfortunate beings, and our efforts may be well rewarded by the patient's appreciation of even a slight alleviation of his affliction.

SUMMARY

1. Paroxysmal oculogyric crises are a common and easily recognizable complication of chronic epidemic encephalitis.

2. The eye spasms are only a part of the crises. Concomitant extra-ocular muscle spasms and compulsion ideas are equally characteristic.

3. The whole crises syndrome may be regarded as a compulsion phenomenon, and should not be confused with hysteria.

4. The three typical cases described present the usual clinical findings.

5. Treatment should be given greater consideration, as different combinations of drugs are of varying value in different cases. Hyoscin, large doses of stramonium and morphin seem to be of the greatest value.

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DISCUSSION

THOMAS G. INMAN, M. D. (2000 Van Ness Avenue, San Francisco).—If syphilis be excluded, probably no other known disease presents the singular peculiarities exhibited by epidemic encephalitis and its sequelae. It begins, in the majority of cases, as an acute febrile attack of unusual severity, affecting the central nervous system as if by predilection, and where death does not occur, terminates in an apparent recovery which is as uncertain in its completeness as it is indefinite in its endurance.

After a period of false security, varying in length from one to three years, a retrograde process begins. There is a gradual slowing up of mental and physical activity. Occupations which have been resumed, in spite of the persistence of various residual symptoms, must be abandoned. Muscular weakness and rigidity make locomotion painstakingly measured and slow. The facial expression becomes fixed, automatic and spontaneous movements cease, the skin may assume a greasy appearance, and the patient presents the outward characteristics of an advanced case of Parkinson's disease.

Clinically, this chronic stage gives the impression of a continuing infection. The exacerbations of symptoms with alternating slight remissions, the apparent transient involvement of new structures causing the occasional eye muscle rigidity, double vision, dizziness, root pains, somnolence or insomnia, and various vasomotor symptoms are not seen in such constant combination in true Parkinson's disease. The preponderance of muscular rigidity over tremor is also much more marked in chronic encephalitis and the spinal fluid may show evidence of a persisting tissue irritation.

Perhaps the chronic stage represents, in part, a continuation of the active disease and, in part, the effect of a destructive lesion.

Oculogyric phenomena, the subject of the paper under discussion, occur much more frequently than the few reported cases would indicate. Appearing some years after the onset of the chronic stage, these new symptoms were assumed to be due to the same causes which are held to account for the rigidity and loss of spontaneous movement in other muscles. Irritation of the oculomotor nuclei, about which the acute disease so frequently manifests itself, may be responsible, but the act lacks some of the characteristics of muscle spasm, one difference being the ability to correct the eye position on command. That they are compulsive acts in the sense that a tic mentale is the external expression of a mental conflict seems doubtful. The symptom is by no means always accompanied by other evidences of emotional unrest and is frequently relieved by the same measures used for the relief of rigidity elsewhere in the body.

Little more than symptomatic improvement has followed the use of any of the methods of treatment at present advocated. The recent use of stramonium, combining the actions of atropin and hyoscyamin has aroused new interest but, unfortunately, is not well borne by some patients. It is not unlikely that the apparent superiority of this drug, as compared with others of the same group, lies in the fact that, in this recently described method, stramonium is given in large doses or until the full physiologic effect is obtained, a factor in treatment often overlooked.

A specific therapy capable of arresting the active process is much to be desired, but it is unlikely that any form of treatment will ever be devised in those cases where blood vessels or nerve cells have been destroyed, which will do more than ameliorate the symptoms.

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WILLIAM L. BENDER, M. D. (384 Post Street, San Francisco).—Each report of localized manifestations of epidemic encephalitis makes one wonder when the list will be complete. All are of practical importance in three chief respects.

First, the desire of men to control the syndrome in which they are interested particularly, is certain to lead to more effective means of treatment of that particular group and possibly of the other unfortunate victims of the disease, albeit the progress is slow. Second, histopathologic examination of the central nervous system of individuals who have developed unusual localized signs will lead to better knowledge of the functions of the relatively unexplored basal ganglia. Certain it is that the lesions are predominantly in this area, but to attempt to explain the presence or absence of pain, salivation, muscle tonus or clonus, changes in behavior, even of lethargy, now is largely a matter of theory. Third, the fact has been thrust on me repeatedly that epidemic encephalitis must enter into the differential diagnosis of nearly every central nervous system ailment, especially the extraordinary, until definitely excluded. In this respect it has recently been pointed out that the effects of the disease become less characteristic as time goes on. How different now from the dictum of the British Government's report in 1920, which stated: "Lethargy and diplopia are present in 75 per cent of the cases."

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ARTHUR E. MARK, M. D. (1680 North Vine Street, Los Angeles).—Encephalitis and its sequelae have been especially prevalent since the influenza epidemic of 1918 and are becoming more and more of a problem of vital importance to the medical profession. That its causation is closely linked with influenza is very evident. A history of a cold or influenza is frequently elicited prior to its onset. In fact, in the differential diagnosis between it and disseminated sclerosis, brain tumor, and tuberculous meningitis, the presence of a cold or influenza antedating or accompanying the attack aids materially in the diagnosis.

The mortality rate is fairly high and the recovery rate is low. In Ziegler's series of 752 cases the mortality rate was 13.2 per cent, and the recovery rate, about five and one-half years (average) after the onset of the disease, was 1.3 per cent.

The time interval, usually of at least several years, required for the development of complications such as the Parkinsonian syndrome and the oculogyric crises described by the authors, indicates a chronic and insidious process where destructive processes might be possible at times to control, as they frequently are in central nervous system or cardiac lues, provided more were known of its cause and a more specific treatment possible.

While vaccines have been used, they have accomplished little. Much of our failure in treatment might be ascribed to the fact that measures of treatment for the most part have been used at the time actual central nervous system destructive changes have already occurred. More specific measures, plus more intensive treatment over the years prior to the development of the Parkinsonian syndrome, may at last lessen the intensity and frequency of these complications.

Vaccine therapy obtained from foci and nasal secretions at the time of the beginning encephalitis would appear to offer some prospects. To be sure, one must realize that actual destruction of nerve tissue is unaccompanied by regeneration. It is conceivable, however, that the destructive process may be partial and in this event proper measures of treatment may allow for a control of the process with retention of function of the part involved.

DISEASES OF THE TONGUE*

By H. C. LINDSAY, M. D.
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DISCUSSION by Samuel Ayres, Jr., M. D., Los Angeles; Moses Scholtz, M. D., Los Angeles; Harry E. Alderson, M. D., San Francisco.

DISEASES of the tongue seem to have been somewhat neglected in our textbooks on dermatology. A simpler nomenclature and more definite descriptions would help the modern student in his studies of the buccal mucous membranes and of the tongue. Standardized nomenclature did much to simplify the study of dermatology, and standardized nomenclature could also be used advantageously to clarify the study of lingual maladies. Up to the present, naming diseases after their discoverers has not been overly indulged in.

We are assured by good authorities that no such thing as psoriasis of the tongue exists. If this be true it is high time that this confusing term should be eliminated. Leukoplakia buccalis is called by over a dozen names, furrowed tongue by about the same number, and transitory benign plaques of the tongue by at least eight names, but the names which appeal to me as being most appropriate are *langue hypertrophie epitheliale filiforme*, and *lingua nigra pilosa*, *langue noire pileuse* of the French; these convey some idea of the pathology.

SOME FALLACIES IN DIAGNOSIS

Fallacies in diagnosis of such diseases as mucous patches of syphilis for stomatitis, syphilitic leukoplakia for lichen planus, traumatic glossitis for sclerosing glossitis, antipyrin rash for luetic papules or erythema multiforme, specific ulcers for tuberculous ulcers or vice versa, carcinomata for gummata or vice versa, cysts for gummata or vice versa, Vincent's infected areas for mucous papules can be eliminated to an appreciable degree by careful diagnostic procedure. Careful history taking, the use of laboratory technique, including selective stains, culturing, microscopic and ultramicroscopic examinations, and exactness in recording symptomatic details will make differential diagnosis much simpler. The reactions chemically upon different media are often informative. The therapeutic test is one method of arriving at a diagnosis which is sometimes neglected. Even in therapeutic tests, drugs of great selectivity for their specific action should be used. Thus neoarsphenamin, which is very useful in treatment of tuberculous lesions of the tongue as well as for its action on syphilis, is not so valuable, diagnostically, as are injections of succinimid of mercury or bichlorid of mercury, which are more selective in their action on syphilis.

Among patients with whom a dermatologist comes in contact are some who have been seen by persons not especially versed in diseases of the

tongue, and abnormalities such as macroglossia or even lingual naevi are mistaken for malignant tumors or syphilis; and comparatively insignificant conditions, such as simple stomatitis, geographic tongue, black tongue, traumatic lesions of minor importance to the tongue, drug rashes and angioneurotic edema of the tongue, all of which have excellent prognoses, are erroneously interpreted as very serious maladies. Mueller's glossitis is so rare that anyone might be puzzled by it, at least for the moment. The prognosis of leukoplakia depends largely upon whether the condition is traceable to recognizable and remediable causes. Cases apparently due to faulty teeth, excessive smoking, and definitely not due to syphilis are not prone to cancerous degeneration to the same extent as where the syphilitic coefficient is present. It has been claimed that all syphilitic leukoplakia are scars. While this statement may be true, it is undoubtedly difficult to recognize this fact at times. Certain cases of lichen planus affect the tongue and resemble leukoplakia without showing the typical mosaic stippling upon the buccal mucous membrane and it might be unrecognizable were it not for the coexistence of lichen planus papules upon the skin. I have found that certain cases of leukoplakia lingualis respond to x-ray treatment; and definitely specific cases have yielded appreciably to x-ray therapy, and lichen planus of the tongue is promptly relieved by it. Radium is probably handier for this work and even more efficient.

Drug toxemias sometimes affect the tongue and buccal mucous membranes. Among these are the arsenicals which occasionally produce a lichenoid rash on the tongue. Phenobarbital may cause erosions similar to those caused by antipyrin and phenophthalein.

TRAUMATIC LESIONS OF THE TONGUE

Traumatic lesions of the tongue occasionally resemble glossitis, especially syphilitic glossitis, and scarring may be a result. Cancer is sometimes produced by irritants acting on the tongue over a prolonged period. These irritants may be mechanical, chemical or thermic, and may be aggravated by superimposed infections. Jagged teeth, infected teeth, poorly constructed artificial dentures produce the most frequent sources of traumatism of the tongue. Undoubtedly some other factors are necessarily present aside from irritants, to induce malignant changes. Comparatively recently, a case was presented to me which had a definite glossitis on the dorsum of the tongue. The latter looked as if malignancy had set in. Examination revealed no induration, and the fact that the patient was young in years caused a careful check-up of possible causes. This led, in due course, to examination of her false teeth. An expert dental mechanic pronounced the dentures mechanically perfect. Syphilis and other diseases were systematically excluded. It was thought that perhaps the gum plastic material used in making the plates might

* Read before the Dermatology and Syphilology Section of the California Medical Association at the fifty-eighth annual session at Coronado, May 6-9, 1929.



Fig. 1.—Leukoplakia buccalis, erroneously called "psoriasis of the tongue."

have decomposed to a slight extent in the mouth and that the patient was suffering from formaldehyd or phenol reactions, as these substances are used in making the newer celluloid combinations, or ambrolites. It was estimated that the infinitesimal amount of anilin dye used in the preparation would have little effect in producing an inflammation. The upper and lower plates were tied to the forearm sufficiently firmly to insure definite contact, and they were left there for a short time. Upon removal it was found that inflammation was present in the skin under the upper denture. Investigation has shown that this defect in gum plastic materials can be overcome by baking it sufficiently, forty minutes at a temperature of eighty degrees Fahrenheit, under proper pressure of thirty-five pounds. This can be accomplished without injuring the color or detracting from the strength of the material. All these condensite materials are being rapidly improved and one of the newer mixtures requires fifty-five minutes, ninety-two pounds pressure, and a temperature of 290 degrees Fahrenheit.

OTHER MOUTH DISEASES

It has been claimed that as high as 16 per cent of apparently normal mouths harbor Plaut Vincent's bacilli, and that astounding factor accounts for this mischievous infection being considered with undue levity by some practitioners. The presence of Vincent's spirillum in symbiosis with fusiform bacillus or other germs such as streptococcus or bacillus pyocyaneus is often the direct or indirect cause of serious trouble in the mouth and on the tongue. Not long ago a dentist, who had a congenitally deeply grooved tongue, found to his annoyance that he had a very sore indurated spot develop in one of the crypts, about

one-half inch back from the tip of his tongue. He consulted two physicians who worried him by the suggestions that he might have cancer or syphilis. Upon microscopical search being made of a fresh smear from the sulcus, pure cultures of Vincent's were found; and a few applications of arsphenamin in glycerin by swab cleared the condition completely.

Stomatitis seems to have been present in many mouths within the last few months. Very severe cases of this disease resemble "foot and mouth disease." It is possible that the latter condition is missed in diagnosis because salivation, which is such a marked symptom of the disease in cattle, is not so marked in human beings, and purpuric lesions may not be present on the hands and feet in every case. Then, too, the methods of investigation that were formerly at our disposal, and strongly recommended by Gerlach, have been curtailed by law. This law is active, but up to date I have not been able to obtain a copy of it. It is, for example, illegal to inject a guinea pig with material from a supposed case of foot and mouth disease to see whether or not the pig will develop classical symptoms, and we are therefore dependent upon symptomatology and upon microscopical finding in the material from smears. We are informed that the disease is due to a highly refractive filtrable infectious organism or virus, the bacillus of Siegel, visible only by means of the ultramicroscope. Personally I have never seen this organism and none of the laboratory experts in my immediate neighborhood seem to know much about it. I strongly suspect some cases of genuine foot and mouth disease in human beings go undiagnosed. The most frequent source of infection by foot and mouth disease in human

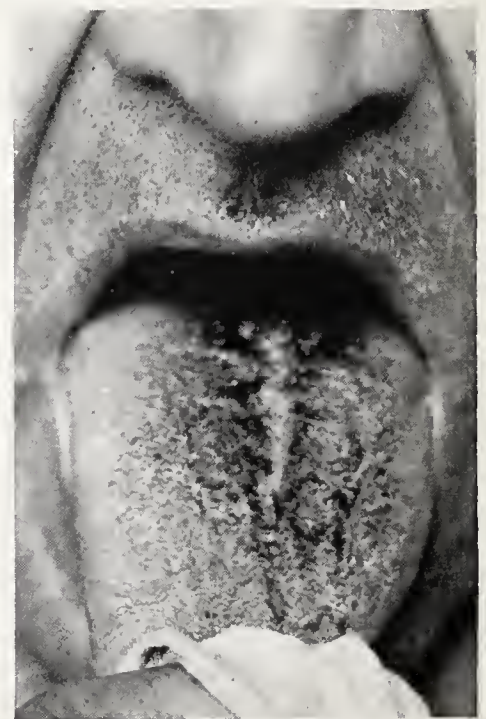


Fig. 2.—Black tongue (lingua nigra pilosa) in a patient suffering from syphilis and cancer of the tongue.

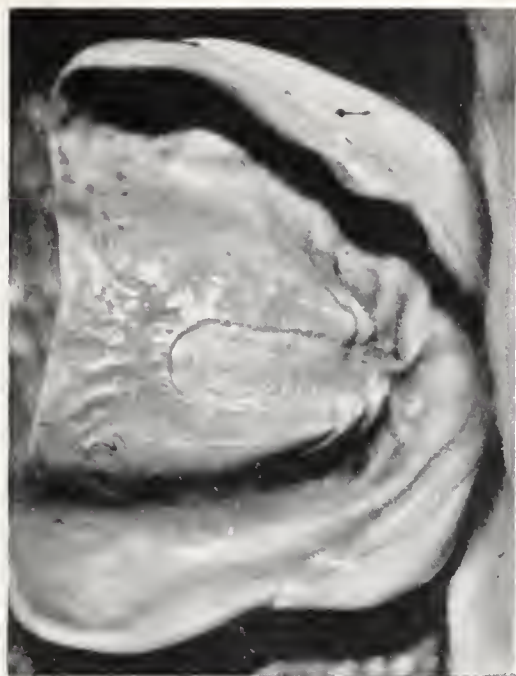


Fig. 3.—Aside from an inflamed tongue, the artificial denture depicted caused a papillary rash resembling granulation tissue along the median raphe of the hard palate. Sharp ridges were present in the scooped-out area. The edges would catch on a silk handkerchief.

beings is supposed to be from infected milk. Incubation period is about three days, before the onset of fever and of blistering, foul odored, salivating stomatitis. The lips and buccal mucous membrane and gums are involved the most. The whole of the mucous membrane of the palate and tongue may be also affected, and a certain amount of sloughing may take place along the gingival margins. At first you will not grasp the possibility that this may be a case of foot and mouth disease, especially if no lesions show upon the hands and feet, and on ordinary investigation by microscope, by cultures and serodiagnosis, negative findings may lead you to suspect foot and mouth disease, but unless you have a tenable history of exposure, or unless you are expert enough to recognize the disease by means of the ultramicroscope, you may never be certain of the proper diagnosis. The fact that the skin exfoliates in some cases of foot and mouth disease is such a late symptom that it is practically valueless in making an early diagnosis.

OTHER CONFUSING DISEASES

The resemblance between foot and mouth disease and what Osler called putrid sore mouth was called to the attention of the medical profession by Osler. I saw a case of uremic stomatitis with swollen mucosa on lips, gums, and tongue. Salivation was present and the breath fetid; an erythema was present on the skin which was purpuric in places. Blood was in the saliva.

The resemblance of recurrent periadenitis mucosae necrotica to the ulcerative Vincent's infection is not very marked, but it is to be remembered that both these conditions may exist on the tongue, the oral mucous membrane, and the vagi-

nal mucous membrane. The former disease is believed to be a tuberculid and may affect several members of a family. Last fall I had as a patient, a mother, with the disease present upon the tongue, the lower lip and upon the vaginal mucous membrane, while her son exhibited the trouble in the mouth. Her father had the disease for many years also in the mouth. The lesions of periadenitis mucosa necrotica recurrens leave permanent scars, recur over many years, and are characterized by the typical manner in which the inflammation develops in one or two spots upon the mucosa; and finally the centers of the circular spots slough down to the corium and then gradually heal by scar formation. During the period of evolution of lesions, the patients may run temperatures, especially if lesions are within the vagina. The child could not eat for days at a time owing to pain of deglutition and mastication. The appearance of a spot upon the mother's lip resembled a typical case of maculopapulo tuberculid. Another comparative rarity which was described in detail by Weidman last year in the *Archives of Dermatology and Syphilology* was seen by myself in April of this year, namely, "black hairy tongue." The case which came under my observation was undoubtedly specific in origin, but the patient believed that the color of his tongue was influenced by a certain mouthwash which he used to clean his tongue. Upon examination with a lens, filiform papillae could be seen considerably elongated, and repeated attempts to wipe out the discoloration chemically and mechanically failed to eradicate it. Applications of the same medicine which he had used upon his tongue did not discolor another tongue. Bismuth, iron, charcoal, and other black stains do not increase the growth of filiform papillae. Weidman suggests that trichomycosis might.



Fig. 4.—The inflamed area along the median raphe of the hard palate here depicted was caused by: (a) Partly by almost invisible spicules on artificial denture illustrated. (b) The plate was slightly loose and the patient habitually pushed it up with the tongue. (c) Gum plastic decomposition may have been a factor.



Fig. 5.—Sclerosing glossitis. This type tends to early epitheliomatous change.

The fact that a physician has been able to definitely diagnose one disease of the tongue does not exclude the possibility of the patient at the same time suffering from other tongue diseases. Thus cancer of the tongue is a frequent complication of syphilis, and syphilis superimposed upon a tuberculous lesion of the tongue, though it is infrequent, has nevertheless been demonstrated.

TREATMENT

A word as to the treatment of carcinoma of the tongue. Surgery undoubtedly has a definite value, but it seems to me that the results obtained by implants of radium seeds alone or in conjunction with surgical interference excel in curative results those obtained by surgery alone. An interesting paper on this subject by Soiland, Costelow, and Meland appeared in the January issue of *Radiology*. Too much must not be expected from excision of the submental gland as an attempt to stop metastasis to the deeper cervical glands, because only some of the lymphatics from the tip of the tongue go through this gland and the channels from the posterior and middle third of the tongue do not.

For some unexplained reason, roentgen ray therapy does not seem to have been used much in treating diseases of the mucous membrane of the mouth. McKee expresses the belief that the mucosa will not stand x-rays well, although he states that he has not used them much for that purpose. On the other hand, Sabouraud is of the opposite opinion. I have used erythema doses of x-rays upon leukoplakia and nonmalignant papillomata with surprisingly satisfactory results. Smaller doses have greatly improved chronically inflamed and enlarged tongues, and they have been useful in reducing the hypersensitive, burning tongue which occasionally affects women during the menopause. Theoretically x-rays should be helpful in treatment of the sensitive tongue in certain leukemic cases.

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DISCUSSION

SAMUEL AYRES, JR., M. D. (2007 Wilshire Boulevard, Los Angeles).—A very common lesion of the tongue was not mentioned which deserves far more attention than is usually accorded it in medical literature and texts. This is herpes buccalis, or the common canker sore. This frequently occurs on the tongue, and while it seldom offers any problem in diagnosis, it may recur so frequently as to make life miserable for the patient. The writer formerly suffered a great deal from these annoying lesions which often made meal-time a hardship instead of a pleasure. Since scrupulously avoiding English walnuts, the lesions have ceased to appear, but recur within twenty-four to forty-eight hours after indulgence in even the smallest amount of walnuts. Many patients have volunteered similar experiences, and it is probable that at times other nuts or even other foods may provoke attacks in certain people. For some reason this information seems to have escaped completely the current texts on dermatology.

Another type of case which might offer a good deal of a problem is the psychoneurotic individual who, in the course of a minute inspection of his mouth, discovers for the first time the large circumvallate papillae on the posterior portion of the tongue. He immediately thinks of cancer and by the time he consults a doctor he has developed all manner of symptoms to go with the hypothetical lesion.



MOSES SCHOLTZ, M. D. (1930 Wilshire Boulevard, Los Angeles).—Diseases of the tongue can be justly considered one of the most difficult and undeveloped chapters of clinical dermatology. The nosology of



Fig. 6.—Leukoplakia present on tip of tongue and on lip, where ulceration had commenced.



Fig. 7.—Same as Fig. 6, showing leukoplakia on right sector of tip of the tongue. (Serodiagnostic tests were negative.)



Fig. 8.—Leukoplakia cleared up under x-ray treatment.

this group of dermatoses is still largely in a state of descriptive study and recording of clinical entities. The stage of final classification and synthesis is still to be looked forward to.

Yet the clinical significance of lesions of the tongue is tremendous. It is sufficient to recall that some of the most serious systemic dermatoses may appear first as the lesions of the tongue. Thus, superficial erosions and ulcerations of the tongue may be the first clinical manifestation of latent leukemia; similarly recurrent minute blisters and sharply circumscribed denuded patches on the tongue may be the first symptom of impending pemphigus long before any skin lesions make their appearance.

Much of the pathogenesis of the lesions of the tongue is still unknown. Taking even so simple looking lesions as common canker sores, we do not know whether they are of allergic, microbic or metabolic origin. Differential diagnosis of the lesions of the tongue is much more difficult than of the skin lesions because of the different tintorial background which hampers correct color perception.

Therapeutics of the lesions of the tongue lag far behind in efficiency in comparison with skin lesions.

One of the most intractable and common lesions of the tongue is leukoplakia. In these lesions I consider electrodesiccation the best "all around" method of treatment. A new promising vista is opened by the recently introduced modality of grenz rays. In one case at least, I was fortunate to obtain a complete healing of a large ulcerated patch of leukoplakia from an erythema dose of grenz rays.

In a large number of benign papillomata so often seen on the tongue, and even of frank malignancy, I regard electrodesiccation as the method of choice, with the subsequent use of radium if necessary.



HARRY E. ALDERSON, M. D. (490 Post Street, San Francisco).—The subject presented by Doctor Lindsay is one that should be discussed more often at meetings. We frequently see these various mucous membrane lesions wrongly diagnosed. Too often snap diagnoses are made by overconfident specialists after a brief inspection of the mouth only. The resemblance between some types of leukoplakia and lichen planus is often so close that no one has the right to make an offhand diagnosis of these conditions. Complete dermatological inspections, including physical and laboratory examinations at times, are necessary to establish the diagnosis.

As for the therapeutic test in cases with lesions simulating carcinoma and lues of the buccal mucosa it must be remembered that arsenic is an epithelial stimulant and, therefore, mercury would be preferable. I have seen two patients with lues and carcinoma of the tongue coexisting who were given arsphenamin followed by marked acceleration of the growth of the carcinomata. One should not waste much time, however, testing for the effects of drugs, for the loss of two or three weeks when radium or surgery might have been applied may be fatal for the patient.

As suggested by the author, roentgen therapy to the mouth is not so difficult to apply as some imagine. But this or any other form of therapy should not be administered before a positive diagnosis is made. Too many x-ray technicians are blindly treating dermatological conditions without really knowing what they are treating. They are very much in the position of druggists, who because they dispense for so many patients yield to the temptation to prescribe for symptoms.

We have had several cases of black hairy tongue and one of white hairy tongue. In both cases Doctor Way has been able to obtain and grow monilia, apparently the main etiological factor.



DOCTOR LINDSAY (Closing).—Time limit on such a paper prevented me from including data as to the efficacy as well as safety of the use of ultra-violet ray

in superficial lesions of the lips such as herpes and canker sores. Ultra-violet ray is also useful in hastening the cure of lesions of stomatitis upon the tongue.

I fully appreciate Doctor Alderson's contention that a definite diagnosis should be made before x-rays are employed in treatment of any lesion whether of mucous membranes or other parts of the body, and its use and the intensity of dosage should be carefully considered before treatment is started.

Allergic reaction of an individual to nigerian nuts, known as "nigger toes," was brought to my notice by a young lieutenant in the Canadian army who had the most intense swelling of the lips and tongue if he but bit into a nut of this kind. Reaction would take place in a very few minutes.

One particular brand of tooth paste has been called to my attention four times. It produces a minute vesicular rash on the insides of the lips of susceptible individuals. Relief is rapid once the patient changes to a potassium chlorate type of tooth paste.

Desiccation is useful for the treatment of papillomata of the tongue and I have used it with success in treating limited areas of leukoplakia, but of course it has its limitations. The cautery has its advocates for leukoplakia also. My object in emphasizing x-ray therapy of lesions of the tongue is that I am under the impression that this valuable modality could be used to advantage in many instances where other methods not more efficacious and decidedly more painful are used.

MISSED INTRA-OCULAR FOREIGN BODIES*

REPORT OF CASES

By BARTON J. POWELL, M. D.

Stockton

IN the mining districts of northern California, injuries to the eyes from foreign bodies frequently occur. Formerly many eyes were lost and many unfortunates went through life blind. With modern methods, such as the magnet and ophthalmoscope, this loss of vision has been greatly reduced. So much has been published on this subject that it is chiefly the purpose of this paper to report some cases of missed intra-ocular foreign bodies.

LITERATURE

From the literature on foreign bodies, I shall take time to quote only briefly. The first recorded localization of foreign bodies in the eye is said to have been made by Dr. Charles H. Williams and Dr. Francis H. Williams of Boston, June 5, 1896, and by Dr. William M. Sweet of Philadelphia in 1898. Derby¹ says, "In every injury to the eye the possibility of an intra-ocular foreign body should be considered. Never depend on the history given by the patient." It is possible to locate and remove one foreign body from the eye and leave another undetected. Cases of this kind have been reported where a piece of steel was removed from the cornea and later a piece from the lens.² According to Fuchs,³ "If there is a foreign body in the eye which cannot be removed at once, the eye is almost always lost"; also in stating the prognosis, "The danger which threatens the other eye because of sympathetic

* Chairman's address, Eye, Ear, Nose and Throat Section of the California Medical Association at the fifty-ninth annual session, Del Monte, April 28 to May 1, 1930.

inflammation must not be forgotten. After an unsuccessful attempt to remove a foreign body, the eye must be considered a constant source of danger to its fellow. This applies particularly when the foreign body is located in the posterior chamber and especially if it is copper." If the patient's intellect is such, however, that the risk can be understood, and an oculist is accessible, such an eye, if quiescent, can be left *in situ*. Recently a patient, an intelligent business man, was brought to our office with a number six chilled shot, received while duck hunting, which was located posteriorly imbedded in the choroid. The eye is quiescent and under observation.

TOLERANCE OF EYE TO FOREIGN BODIES

It is interesting to note in this connection some cases of unusual toleration of foreign bodies. Herman Knapp⁴ reports that foreign bodies have remained in the eye and become encysted, as in the case of a man who had a piece of glass in the vitreous for eight years, and another who had a piece of brass for four years. Walter Scott Franklin and Frederick C. Cordes report a case of an intra-ocular foreign body of forty-six years' duration where no attempt had been made to ascertain its location. After enucleation, the foreign body proved to be a piece of copper three millimeters square. Adroque and Crocco⁵ of Buenos Ayres relate that an iron splinter which had been in the anterior chamber of a recruit's eye since childhood seemed so perfectly tolerated that the recruit was accepted without any attempt to remove the foreign body. A. E. Bulson, Jr.,⁶ reports many cases of tolerance to foreign bodies within the posterior segment of the eye, and in the discussion Dr. Lloyd Mills of Los Angeles stated: "Our conception of sympathetic ophthalmia in relation to retained foreign bodies is to a large extent based on the faulty German statistics made as a result of the Franco-Prussian War in 1870. In that report approximately 100 per cent of cases of sympathetic ophthalmia were stated to be the result of injuries of this sort. During the first year of the war, study of these cases up to that time showed that the original statistics were entirely incorrect." There had been many cases of retention of multiple foreign bodies in the posterior segment of both eyes with reasonably good sight. At that time he made a prediction that we should have to change our attitude toward retained foreign bodies. He further states, "I have seen a number of cases in which several multiple foreign bodies have been retained with fairly good vision"; quoting Dr. George E. DeSchweinitz,⁷ "While foreign bodies in the background of the eye may be tolerated for a long period of time, with retention of good vision, they never can be trusted and are liable to cause degenerative changes." Parsons⁸ says that in rare cases foreign bodies in the vitreous may be encapsulated and remain indefinitely without set-

ting up any serious changes. But unfortunately there are few late histories of these cases. Certainly in a large number deterioration of vision occurred, and even loss of sight. These are the usual sequelae.

As the nearest oculist to the lumber camps and mines in one of California's mining districts, I have seen some interesting cases of missed foreign bodies, but I wish to cite only a few.

REPORT OF CASES

CASE 1.—C. A. G., laborer, twenty-six years of age, working at Hetch Hetchy for the San Francisco water system, gave the following history: July 8, 1928, was hit in the left eye by a piece of rock; received attention at the company hospital in the mountains for three weeks; no x-ray taken. He was referred to the writer August 2, 1928, three weeks later. Examination: Vision of the right eye, the uninjured eye, 20/200. Patient stated he had always realized that the vision in this eye was not acute, and in shooting a gun he had shot left-handed. Vision in the right eye, the injured eye, was to light only. With the aid of the Sweet localizer, a foreign body was localized in the vitreous and proved to be a piece of steel $3 \times 3 \times 1\frac{1}{2}$ millimeters, notwithstanding the only history of injury available was of having been struck by a piece of rock. The steel was removed with the giant magnet through a scleral opening. On April 3, 1929, nine months afterward, vision in the right eye,

1.50
with a plus —, 90 degrees, was 20/70. With a 0.50 plus 0.50, cyl. 180 degrees, the vision of the injured eye was 20/100. The patient has experienced no difficulty and will probably continue to have vision sufficient for ordinary laboring purposes.

✓ ✓ ✓

CASE 2.—This I consider a very unusual case. J. B. S., twenty-nine years of age, employed by a lumber company in Tuolumne County, gave the following history: The right eye had been inflamed for two weeks before consulting me, and he had attributed it to irritation of cedar-wood dust. Examination on July 2, 1926, showed vision in the right eye of fingers at one foot, left eye 20/15. There was a pronounced keratitis which obscured any vision into the interior of the eye; Wassermann negative, x-ray of teeth negative. He was returned to the company hospital and, in addition to treatment of the eye, mercurial inunctions were advised. On August 6 he was returned to me and there was no improvement noted in the eye condition. In reviewing the history again with the patient, it was ascertained that there were numerous small bits of foreign bodies in the eye at the time he came in contact with the cedar dust. Patient seemed stunned at the time, but continued to work for a week. He stated that during all this time he had no pain. At times the eye was slightly tender and there was no vision. As the foreign material hit him with some force as it descended from the waste chute, the possibility was considered of there being some small steel filings from the loose strips of an old steel cable. X-ray was taken and a foreign body located 32 millimeters posterior, 15 millimeters above, and 25 millimeters to the temporal side from the center of the cornea. The size of the body was $3 \times 1 \times 1$ millimeters. The magnet was negative. From the measurement you will note that the foreign body was posterior to the eyeball. On August 25, some eight weeks after the accident, there was a general panophthalmitis and the eye was enucleated. The foreign body was not recovered.

✓ ✓ ✓

CASE 3.—G. D., laborer, twenty-four years of age, employed in the mountain district of Tuolumne County. On September 26, 1926, he was struck by a piece of rock; no particular pain; treated at the

emergency hospital in the mountains for contusion from September 26 to October 18, when he was referred to me. Examination showed vision of right eye nil, left eye 20/20. With the aid of the Sweet localizer a foreign body 4 x 4 x 4 millimeters was located eight millimeters back to the center of the cornea, one millimeter below and one-half millimeter to the nasal side. Under a general anesthetic the usual scleral incision was made and no difficulty experienced in removing the foreign body, which proved to be steel. On December 6, 1926, the vision of the right eye was perception of light; no pain, pupillary reaction sluggish, detached retina; left eye 20/20, Jaeger 1. In this case there was no vision from the date of the accident, but with the foreign body removed the danger of sympathetic ophthalmia was avoided and the cosmetic effect assured.

CASE 4.—J. A. F., mechanic, twenty-four years of age, living in Turlock. Patient reported October 24, 1923, stating that six days previously, while chipping hard steel, a piece hit the left eye. He was seen by a local physician; no x-ray taken; given conservative treatment. When first seen by me he had a corneal scar and traumatic cataract. The giant magnet was tried for diagnostic purposes and a sliver of steel was immediately drawn into the anterior chamber and was removed through the corneal scar.

In these and many other cases which have come under my observation, I realize each day how much oculists owe to Dr. William M. Sweet for his excellent localization apparatus. If oculists would follow this method and make use also of the giant magnet of the Hobbs type and in some cases a portable magnet, intra-ocular foreign bodies would be more readily located and fewer of the obscure type would be missed.

To summarize, the oculist must bear in mind these points:

1. According to the advice of such authorities as DeSchweinitz and Parsons, intra-ocular foreign bodies may at any time cause serious disturbances.

2. The history given by a patient with an eye injury can never be relied upon. Experience has proved that very often a patient does not know what really happened to his eye.

3. The safe procedure is a systematic examination of all cases for missed intra-ocular foreign bodies.

4. There should be frequent use of the magnet and x-ray, not only to detect the presence of a foreign body, but also as a safeguard against probable charges of malpractice and neglect.

And, lastly, make intelligent use of that most valuable localization apparatus, perfected by that grand old master, the late William M. Sweet.

Medico-Dental Building.

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THE SYPHILITIC KIDNEY*

REPORT OF CASES

By IRVING BANCROFT, M. D.

Los Angeles

DISCUSSION by Harry E. Alderson, M. D., San Francisco; Henry H. Lissner, M. D., Los Angeles; George D. Culver, M. D., San Francisco.

SYPHILIS, either the so-called hereditary form or the acquired form, is at first a definite septi-cemia. That is, the spirochetæ circulate in the blood and, as the blood is definitely antagonistic to their continued presence, they quickly enter the blood vessel walls and perivascular spaces and there are quickly surrounded by groups of lymphoid and plasma cells. These groups of primitive cells when located in the kidney soon press on the highly organized secreting cells and there is a definite loss of function of the kidney as a whole. This process takes place to a certain extent as the final result in all infectious diseases and in certain toxemias. As Warthin says, speaking of syphilis, "The price of immunity is fibrosis."

CHANGES DUE TO FIBROSIS

It is probable that the cycle from infiltration to fibrosis occurs rapidly in the kidney region. Autopsy reports on syphilitic children show that diminution in size of the kidney is a comparatively early symptom of syphilis. Warthin has made some wonderful sections of the kidney in very early syphilis showing spirochetæ in the walls of the tubules and especially in the walls of the convoluted tubules and in the perivascular spaces, but autopsies in general on syphilitics show fibrosed kidneys. Warthin does not find spirochetæ in a fibrosed area, but in an area where there is still an infiltration with lymphoid and plasma cells. But a definitely fibrosed kidney is an example of "damaged goods" and, as such, is liable to be affected by any of the ordinary toxic remedial agents somewhat in proportion to the extent of the existing fibrosis.

Children with congenital syphilis would be expected to be particularly susceptible to irritating syphilitic remedies because, except in very young babies, the stage of fibrosis would have been reached. During the last two years the writer treated twenty-five patients with congenital syphilis and of these, three had albuminuria at some time during the course of treatment. Quesliuer has made an interesting study bearing on this point. She traced the kidney history of one hundred congenital syphilitics for a period of many years and found that 40 per cent had developed acute nephritis at some time and mostly from very trivial causes. One patient, for instance, developed acute nephritis following two patches of impetigo.

Syphilitic nephritis, the kind occurring during the secondary stage of an untreated syphilis, is very rare. H. A. Christian states that he has only

* Read before the Dermatology and Syphilology Section of the California Medical Association at the fifty-eighth annual session at Coronado, May 6 to 9, 1929.

seen two or three cases and that he is not sure what bearing the positive Wassermann and the history of syphilis has on them. He also states that there is a question whether the high lipoid content of these patients has some influence on the Wassermann reaction. It is significant that Warthin did not find any lipoid degeneration in the tubules of autopsied syphilitic kidneys. Syphilitic kidneys are supposed to improve with antisyphilitic treatment because the spirochetes are in accessible places and are not protected by fibrous tissue. The diagnosis of this form is made when other etiologic factors are absent and complete abatement of the symptoms takes place following antisyphilitic treatment. The symptoms are essentially those of ordinary acute nephritis but with a normal or nearly normal blood pressure and, especially, enormous edema and large quantities of albumin in the urine.

In a series of three hundred and fifty patients in which the urine was examined by the author, mostly from the Los Angeles City Clinic, albumin was found in two patients during the first few months of the disease, this being one-fourth of the total number which showed albumin. These two patients both became albumin-free after treatment was stopped.

Another patient who was practically typical of Epstein's nephrosis developed a marked edema of his legs in October 1928. His blood pressure was normal; urine contained six per cent albumin. His Wassermann reaction was four plus. Urine contained casts and renal cells chiefly. He received antisyphilitic treatment at the Los Angeles General Hospital, and also was under a high proteid diet and at times a nephritic diet. While taking bismuth and neoarsphenamin, the albumin increased to 26 per cent, but with a rest in bed and bismuth it decreased again to six per cent. In January 1929 he went to Arizona and ceased treatment. On April 5, 1929, he still had marked edema of his legs. The diameter of the smallest part of his ankle was $13\frac{1}{2}$ inches. He is 5 feet 11 inches tall and weights 150 pounds.

EFFECTS OF TREATMENT

Treatment, of course, can never replace the fibrous tissue by secreting tissue, and the most that can be hoped for is to prevent the reproduction of spirochetes and to lessen the mobilization of lymphocytes and plasma cells and to lessen the pressure on the glomeruli and other secreting parts of the kidney. But treatment is also a two-edged sword, the immediate and final results of irritative substances passing through the kidney is practically identical with that which takes place when spirochetal irritation has existed for a long time, and it is reasonable to expect that in certain cases symptoms of kidney irritation would take place on a very slight provocation.

It is probable that during the course of treatment many kidneys already injured by syphilitic infection are irreparably damaged. Others which are not so damaged get enough punishment to cause malaise and a condition of debility which is often falsely attributed to the syphilitic infection itself or, as some say, to the liberation of syphilitic toxins. It has been noted by many ob-

servers that the syphilitic patient complains of vague symptoms toward the end of a course of treatment and soon becomes normal when the vacation period has been well entered. The symptoms of these patients are similar to those of acute tubular nephritis or nephrosis, as this form is called sometimes, and it is a well-known quality of the kidney of this kind to have a different coefficient of excretion for various elements, especially for salt, water and nitrogen. So it is with arsenic. If the kidney excretes the arsenic promptly, there might be less reason for liver degeneration or necrosis. It is even stated dogmatically by some authors that if the kidney functions properly that liver degeneration will not take place.

The following case would serve to indicate, however, that the kidney may function properly and still there may result a definite hepatitis.

A young woman, well developed and nourished, age twenty, had a primary sore in March 1928. Between then and November 1928 she received twenty-one doses of neoarsphenamin and mercury, with three rest periods of four weeks each. During the first two courses she had acute lumbar pain lasting for a short time after some of the neosalvarsan injections. Following the first dose of the third course, she became sick with slight fever, chills, nausea, and malaise. Three weeks later she developed a severe jaundice. Urine was normal except for a few hyaline casts and at times a small amount of albumin. Kidney function tests were normal with phenosulphothalein appearance time thirty minutes, 45 per cent in first half-hour. Autopsy six weeks after last syphilitic treatment revealed a kidney with moderate degree of cloudy swelling and with glomeruli and secreting tissue fairly intact. The liver showed acute hepatitis, with degeneration and cellular infiltration, and it was evidently the liver condition which caused her death and, according to Doctor Wagner, who performed the autopsy, the liver degeneration was caused by arsenical poisoning.

Concrete examples of the injury caused by irritative syphilitic remedies are easily available. During a war service in a large base hospital the writer was required by his commanding officer to examine the urine of all who received syphilitic treatment, just before and six hours after treatment. The treatment was arsphenamin and was given diluted with twenty-five cubic centimeters of water to each one-tenth gram. Exact figures are not available, but from memory about six out of each one hundred patients would show albumin six hours after treatment, and of these, three would still have albumin at the next treatment day. In three hundred and fifty cases recently examined by the writer eight showed albumin at some time during a course of syphilitic treatment. Details of a few cases follow.

REPORT OF CASES

CASE 1.—Man, age forty-nine, cardiovascular syphilis, Wassermann, one plus. On August 29, 1928, urine was negative. Took seven doses of neosalvarsan, and on December 5, 1928, and during the succeeding weeks, the urine contained albumin. Took no treatment during that time. On January 14, 1929, the urine contained no albumin. The treatment was neoarsphenamin and mercury.

CASE 2.—Boy, age eighteen. Chancre was noticed in October 1927. Thirteen doses of neoarsphenamin and twelve doses of mercury were given up to March 1928. Albumin was found after the first dose of neoarsphenamin; urine again contained albumin. After several weeks patient became albumin-free. But after another dose of neoarsphenamin he again showed albumin in considerable amount.

It has been said that dermatitis is less liable to occur when the kidney function is perfect. However, in thirty-three cases of dermatitis which occurred at the city venereal clinic and in private practice only two patients showed albumin.

SYMPTOMS DUE TO THERAPY

The symptoms seen many times during treatment of syphilitic patients and which are probably due to medication may be classified as follows:

Stomatitis, diarrhea, and dysentery are probably due to gastro-intestinal disturbance. Loss of appetite and jaundice are due to injury to the liver. Lumbar pain, diminution of urine, and albuminuria are due to injury of the kidney tissue.

It would seem prudent in the treatment of syphilis that the eliminative power of the kidney filter should be kept intact, and that the other organs of elimination should be constantly watched. The skin, sweat glands, liver, and intestines are sometimes overlooked, but they have a share in excretion. Albumin and urobilin in the urine should both be considered as red flags, indicating possible danger ahead, and jaundice, even though slight, should be a semaphore signal to stop all irritative treatment.

SUMMARY

1. In the urinary examination of three hundred and fifty patients with syphilis no definite instances of syphilitic nephritis which improved under treatment were discovered.

2. Neoarsphenamin treatment was followed by albuminuria in three per cent of three hundred and fifty adult patients.

3. Neoarsphenamin treatment was followed by albuminuria in twelve per cent of twenty-eight congenital syphilitics.

4. Albuminuria occurred in six per cent of thirty-three luetic patients in whom dermatitis occurred during arsenical treatment.

803 Detwiler Building.

DISCUSSION

HARRY E. ALDERSON, M. D. (490 Post Street, San Francisco).—This interesting paper brings up many questions of practical importance. The ability of the kidneys often to stand heavy antisyphilitic treatment without serious damage is well known. This fact and the belief that the liver can likewise stand the same may give a false sense of security to those who believe in "superintensive" therapy. Much of our treatment of syphilis consists of the use of drugs and measures to build up bodily resistance to the *Spirocheta pallidum* and we are defeating our own purpose in pushing arsphenamin, bismuth, or mercury therapy too far. We have learned, the past few years, to give smaller doses of arsphenamin at shorter intervals and to watch very carefully for early signs of untoward effects. Certainly, as Bancroft states, albuminuria, urobilinuria, and jaundice constitute danger signals.

In early syphilis, albuminuria and casts are seen fairly often and then a true acute syphilitic nephritis may develop. This nephritis may be made worse by intensive treatment. It usually will respond to small doses of neoarsphenamin and bismuth. Too rapid destruction of the *Spirocheta pallida* in renal and liver foci may result in serious damage to these organs. In brief, one should follow a general plan, but should vary this treatment with the patient, remembering always that one is treating the patient as well as the disease.



HENRY H. LISSNER, M. D. (1131 Roosevelt Building, Los Angeles).—Every infection leaves its residue which may be seen either immediately after the acute manifestations have subsided, or may act as an important etiological factor in the development of future trouble. We have too often hidden behind a veil of false security from this standpoint.

It has been difficult to definitely ascertain the exact amount of damage the syphilitic process produces to the kidneys in acquired syphilis. The medical literature on this subject is scarce, and many excellent books on nephritis do not even mention this subject. Studies, such as Doctor Bancroft has presented, should be encouraged to help us solve this important problem.

I quite agree with Doctor Bancroft that overzealous use of antisyphilitic remedies without proper laboratory studies before and during treatment have caused irreparable damage.

The facts brought out in reference to the effect of congenital syphilis upon the kidneys and its treatment are very interesting.

What type of medication to use in the treatment of congenital syphilis has always been a great problem not only from the standpoint of possible damage of the kidneys and liver, but also of the cardiovascular system.

From my own personal experience I am of the opinion that in the treatment of syphilis, after the acute stage has passed, the arsenic preparations are contraindicated. I also feel that before the treatment by arsenic and mercury are resorted to, that careful studies should be made of the kidney function and liver function, and where either of these are found at fault, bismuth is the medication of choice. That if these tests are followed carefully less damage will be done to the liver and fewer fatalities will occur from the lighting of an acute nephritis on a chronic basis.



GEORGE D. CULVER, M. D. (450 Sutter Street, San Francisco).—Doctor Bancroft has done well to point out again the possibility of disease of the kidneys in syphilis and in its treatment.

In the study of such an important phase of the disease as disturbed kidney function in the treatment of syphilis, which seems to me to be of paramount importance, one has to consider the syphilitic patient as an individual. As important as specific medication is, the body as a machine is more important still. It has within it a big factor of natural resistance. Medication must not be permitted to break down that natural resistance and render the mechanism less effective.

When with careful watching it is discovered that a defective kidney function of acute character has developed, or that it is indicative of possible true syphilitic pathology, treatment has to be modified to fit the case under management.

Since the most effective medication in syphilis depends upon rapid ingress and likewise rapid egress of the medicament, it is of the greatest necessity that all the eliminative systems should act as perfectly as it is possible to make them.

URETERAL PAIN AFTER NEPHRECTOMY— TREATMENT BY URETERECTOMY*

REPORT OF CASES

By LEWIS MICHELSON, M. D.
San Francisco

DISCUSSION by Anders Peterson, M. D., Los Angeles;
William E. Stevens, M. D., San Francisco.

THE pathological ureter as a cause of disturbance in the abdomen and back is now well recognized. Appreciation of this fact has been accorded only within the last ten or fifteen years, and has been a slow and gradual process. At present, when a patient complains of pain in the abdomen, more localized in the lower half, or the lumbar regions—ureteral pathology should be thought of. No longer do we consider only the old-time culprits, such as the appendix, tubes, kidney. Now we take into consideration, also, the ureter as a quite possible cause of the condition.

It is only within a comparatively recent time that medical men have realized that, before removal of the appendix, the question of an ureteral stone should be thoroughly considered. More recently yet, our knowledge of ureteral strictures and kinks has so progressed, that it has become routine, in cases of this type, to carry out a detailed examination of both ureter and kidney, unless the pathology is obvious. The development of nephro-ureteral surgery has likewise progressed since the time when nephrotomies, nephrectomies, and ureterectomies were virtually the only nephro-ureteral operations performed.

Nowadays plastic operations upon practically any part of the tract, or even a complete nephro-ureterectomy with partial cystectomy is not uncommon. Ureterectomies, subsequent to nephrectomies, however, are very unusual. This is probably due to advances in pathology and diagnosis of reno-ureteral disease; so that at the time of operation the necessary surgery is accomplished, and the ureter removed when indicated. However, although uncommon, subsequent ureterectomy has been carried out in quite a number of cases, notably for stone, tumors, or metastases left in the ureter, for pyuria and persistent sinus. In all the cases I have been able to find in the literature, the pathology was very evident and easily demonstrable, but the type of case that I desire to call attention to is the one in which all laboratory findings, including ureterograms, are negative. In this type, no definite pathological entity can be demonstrated, the diagnosis being made from the clinical history, the predominant symptom being pain.

REPORT OF CASES

The following is a summary of the two cases I am reporting:

CASE 1.—Miss G. C. Age 38 years. Referred by Dr. A. N. Nittler, September 13, 1929.

* Read before the Urology Section of the California Medical Association, at the Fifty-ninth Annual Session, Del Monte, April 28-May 1, 1930.

Complaint: Pain in right groin and back.

Past History: Seven years ago frontal sinus operated upon. Appendectomy about two years ago. Last February operation for adhesions around pylorus and duodenum which relieved excessive nausea and vomiting. Three months ago hysterectomy with removal of tubes.

Present Illness: For the last four weeks the patient had pain in right groin and right lumbar region, intermittent in character, and at times excruciating. This had no relation to taking of food. Has had increased frequency in urination, but no dysuria, hematuria, or passage of calculi. Urine showed occasional white blood cells. Has had no chills; temperature varied from 99 degrees Fahrenheit to 101 degrees Fahrenheit. Gastro-intestinal history negative. The patient's general condition was emaciated and weak. There were several scars on the abdomen and one on the face from the frontal sinus operation. Except for tenderness over the right kidney with some rigidity, the physical examination revealed little. Cystoscopy showed only patches of localized cystitis. Pyelograms and passage of wax tips were likewise negative. Although no definite tug was met with, the patient seemed to improve for a time with dilatation of the ureter. However, the pain becoming constantly severe and her general condition seriously weakened, a nephrectomy was done as it was felt that a stripping and exploration of the kidney and ureter would probably so exhaust the patient that if a subsequent nephrectomy had to be done she would not survive. The report from the pathologist showed only round cell interstitial infiltration. Following the operation the pain was relieved for about six days; it then returned and was especially severe on voiding and upon expelling enemata. It was also necessary to keep her under opiates a good part of the time and sixteen days after the nephrectomy, a ureterectomy was done. Macroscopically, the ureter was apparently normal. Microscopically it showed areas in which the submucous fibrous tissue was increased with round cell infiltration. Following this operation the patient developed a septic temperature, the white cell count was eighteen to twenty thousand with 84 per cent polymorphonuclear leukocytes. Tenderness and pain were present over the upper end of the wound. No pus could be demonstrated, and after a stormy three weeks this condition subsided. The patient then made a slow convalescence, but there has been no return of the pain to the present date.

CASE 2.—Mrs. L. S. Age 41 years. December 4, 1925.

Complaint: Pain in right lower quadrant radiating down right thigh anteriorly and laterally.

Past History: Not essential except right nephrectomy five years previously. The kidney at that time was prolapsed and the pains were present, similar to those felt at the time I saw her. She had had a previous nephropexy which was not successful.

Present Illness: Patient was in apparently good health until one day before she was seen, when she was seized with a sudden severe pain in the right lower quadrant radiating down the right thigh anteriorly and laterally. It did not radiate into the back. The patient had to keep her right thigh flexed as the pains increased upon straightening out the leg. The patient was not nauseated and had had no chills or elevation of temperature. The urine was negative. Examination of the abdomen showed rigidity and tenderness about McBurney's Point, otherwise negative. On vaginal examination there was some tenderness over the right ureter in the broad ligaments. A ureteral catheter with number twelve bulb was passed about twenty-five centimeters into the right ureter and the pain almost immediately subsided. The pain recurred at intervals of a few days to a couple of weeks and each time was relieved by the dilatation of the ureter. This continued over a period of about three months before the ureterectomy was done. Cystoscopy showed a normal bladder with apparently

functionless right ureter. Ureterogram demonstrated a normal ureteral outline, the upper end, however, was blunted and showed no pelvis. The left kidney and ureter were normal. On March 11, 1925, a right ureterectomy was done. The ureter appeared soft and normal throughout and no change in the wall could be demonstrated macroscopically. Microscopically the ureter showed very little except edema and polymorphonuclear infiltration of the wall with some loss of mucosa. Culture and microscopic examination of smears were negative for bacteria. The patient has had no pain in the right side since, although she has had symptoms referable to a ureteral stricture on the left side.

COMMENT

The reason that more cases of this kind are not operated upon, is due, I believe, to the general conception that pain in the reno-uterine tract is from back pressure due to obstruction. The kidney being removed and urine no longer secreted, there is no back pressure and the cause of pain must be looked upon as extra-ureteral. Therefore, according to this way of thinking, removal of the ureter would give no relief.

Nevertheless, it is not improbable that the inflammatory reaction is due to infection, carried by the lymphatics around the ureter. One must also bear in mind the sensitiveness of the parietal peritoneum, to which the ureter is attached, and not overlook the fact that any inflammatory condition of the ureter may react on this membrane.

In both the cases to which I have alluded, the pain was the deciding symptom. And the fact that pain was present when there was no back pressure, and disappeared upon resection of the ureter, shows definitely that pain in like cases, even where the kidney is still present, is not due exclusively to back pressure.

CONCLUSION

In cases where, after nephrectomy, pain is present, apparently along the line of the ureter, and this pain is severe and persistent—after elimination of other possible causes, removal of the ureter should be seriously considered.

490 Post Street.

DISCUSSION

ANDERS PETERSON, M.D. (1136 West Sixth Street, Los Angeles).—It has not occurred within my experience that the ureter free from pathology has caused any disturbances following nephrectomy. On the contrary, many pathological ureters are permitted to remain at the time of nephrectomy, and only a few of these cause any disturbance. This, I think, is particularly true in cases of tuberculosis, where the ureter is almost always involved in the tuberculous process.

In neither one of the two cases reported by Doctor Michelson did the pathologist demonstrate any pathological entity. However, it is of interest that in Case 2 temporary relief was experienced by the patient following dilatation of the ureter. This, to my mind, did indicate that even though the kidney was removed some distension of the ureter might well have been responsible for the pain.

I have recently had such an experience with a man upon whom a nephrectomy for stone had been done some years previously and who complained of pain in the nephrectomized side. The urological examination revealed several small calculi, lying in the lower end of the ureter, and this man actually experienced a pain similar to renal colic, extending well up into the kidney space.

I am not convinced that mild inflammatory processes, without distension, can be depended upon as a cause of this ureteral pain. I think that the dilatation of the ureter for the purpose of studying its effect upon the pain should be a helpful guide, before extirpation of the ureter is considered.



WILLIAM E. STEVENS, M.D. (608 Flood Building, San Francisco).—Doctor Michelson's interesting paper calls attention to an unusual condition, ureteral pain after nephrectomy in the absence of demonstrable pathology of the ureter or other urinary organs. I have never seen a similar case. The disappearance of the pain following ureterectomy seems to indicate the presence of some pathologic condition of the ureter, the diagnosis of which was impossible with the methods of examination available at this time.

A case I saw in consultation a short time ago is interesting in this connection. The patient was a young girl who entered the hospital complaining of pain in the right lumbar region and the upper and lower right abdominal quadrants. The family history was negative. She had been treated fourteen months before for pain in the right lumbar region accompanied by pus in the urine. Her temperature, pulse, urine and blood count were normal. Tenderness was somewhat greater on deep palpation at McBurney's point. Pyelography revealed an enlarged right kidney pelvis. Indigo carmine injected intravenously appeared at the left ureteral orifice in five minutes, but none could be detected on the right side in one-half hour. Further examination was refused.

Following a provisional diagnosis of appendicitis her doctor removed an appendix not definitely pathological. Notwithstanding the abnormal condition of the upper urinary tract the lumbar and abdominal pain disappeared following the appendectomy. In view of the findings treatment directed toward the urinary tract would have been justifiable but probably no improvement would have resulted.

THE LURE OF MEDICAL HISTORY

GIROLAMO FRACASTORO (1478-1553)—
AND SYPHILIS*

By W. K. STRATMAN-THOMAS, Ph. D., M. D.,
D. T. M. AND H.
New York City

FOUR hundred years ago (in August 1530), Girolamo Fracastoro, the genial Veronese physician, astronomer and poet, published that most interesting medical poem *Syphilis sive Morbus Gallicus*. Dedicated to his friend, the Cinquecento pagan, Cardinal Pietro Bembo, the poem surveys, in the flowery pseudoclassical style of the period, opinions on the origin, symptoms, and treatment of the disease now known by the name Fracastoro gave to one of his poetical characters.

Where Fracastoro got the word *syphilis* is not known. But that this name of the fictitious shepherd, who Fracastoro says first contracted the illness by defying the sun god, has become the common designation of the disease was not mere chance. The jolly Fracastoro deliberately gave

* Edited for publication by Dr. S. V. Larkey and Professor C. D. Leake from notes and material prepared by Dr. Stratman-Thomas while in London and Africa as a Guggenheim Traveling Fellow, 1928-1930.

* Read before the California Medical History Seminar, at a luncheon in honor of Dr. and Mrs. Charles Singer of London, on August 19, 1930.



HIERONYMI FRACASTORII.

Fig. 1—Wood-cut portrait of Fracastoro in his *Homocentrica*, Venice, 1538. Supposed to be the only genuine likeness made during his life (1478-1553).

the cue in the poem itself. As translated in 1686 by "England's worst poet laureate," Nahum Tate, the passage reads:

A Shepherd once (distrust not ancient Fame)
Possess these Downs, and *Syphilus* his Name.

He first wore Buboes dreadfull to the sight,
First felt strange pains and sleepless past the Night;
From him the Malady receiv'd its name,
The neighboring Shepherds catcht the spreading
Flame.

Later, in the more critical discussion of the disease in his pioneer treatise on infections, *De contagionibus et contagiosis morbis* (1546), Fracastoro consistently refers to the condition by the name given to it in his earlier poem, *Syphilis*.

While Fracastoro is generally known because of his famous poem, his scientific position is assured by this treatise on infections. Carefully analyzed by the Singers,¹ they state "the excellencies of this work are so numerous as to mark an epic in the history of medicine." As an astronomer, Fracastoro wrote in opposition to the Ptolemaic doctrine of a geocentric universe. In this he may have been inspired by his medical schoolmate at Padua, the famous Pole, Copernicus (1473-1543). The first to use the term "pole" with reference to the earth, he was also a pioneer in the scientific analysis of the refraction of light, and the Singers say he was "probably the first to suggest the combination of lenses as an aid to vision." Always busy at intellectual tasks, he shunned the political and religious intrigues of his age, and lived quietly in his country villa, beloved by his friends and respected by his

countrymen. He died in 1553 from apoplexy, and was buried in his beloved Verona.

In 1555 the Senate of Verona commissioned Danese Cataneo to carve a lifesize statue of Fracastoro,² which now adorns a narrow street arch near the Piazza dei Signori. Klebs has enterprisingly described² another bust; presumably of Fracastoro, by this same Cataneo. Most of the representations of Fracastoro seem to have been taken from the woodcut portrait in his *De Homocentricis* (Verona, 1538), which is supposed to be the only authentic likeness made during Fracastoro's life. There is, however, a portrait (No. 3949) in the National Gallery, London, which is supposed to be that of Fracastoro, and which is attributed to Francesco Torbido (1486-1545). While it portrays a slightly younger man than the woodcut, there is considerable similarity. The mole near the nose on the right side of the face, which shows on the woodcut, is lacking in the painting. But in the Pitti Gallery (Florence) portrait,³ this mole appears on the left side of the face. Since the National Gallery portrait has not hitherto been published, enough interest attaches to it to reproduce it here, with the woodcut, for comparison.

THE POEM

After the usual flowery introduction, Fracastoro alludes to the belief that syphilis was brought to Europe from the New World. He says, as translated by Tate (1686):

"Say, Goddess, to what Cause we shall at last
Assign this Plague, unknown to Ages Past;
If from the Western Climes 'twas wafted o'er,
When daring Spaniards left their native shore;
Resolv'd beyond th' Atlantick to descry,
Conjectur'd Worlds, or in the search to dye.
For Fame Reports this Grief perpetual there,
From Skies infected and polluted Air:
From whence 'tis grown so Epidemical,
Whole Cities Victims to its Fury fall;
Few 'scape, for what relief where vital Breath,
The Gate of Life, is made the Road of Death?"

It may be that the "Grief perpetual" referred to in the New World was yaws, difficult to distinguish from syphilis, and endemic in the West Indies. Columbus' sailors may easily have contracted this disease and returned with it to Europe.

But Fracastoro with much wisdom does not directly accept the vulgar notion that syphilis was a newly arrived disease for these cogent reasons: Syphilis appeared in some European countries having no traffic with America; the disease became epidemic in many distant nations at the same time; syphilis was present first in France, then in Italy before it was known in Spain. Therefore, for the origin of syphilis one must look elsewhere than to America.

Further, in this pioneer but poetical discussion of the origin of syphilis, Fracastoro states that diseases are of two kinds: certain distempers are constantly present (endemic) and consequently are always recognized; others may appear only at long intervals (epidemic)—intervals so long that not only the clinical description of the disease, but its very name is forgotten. Syphilis

is one of the latter group, and the Neapolitan pestilence is not the first epidemic of syphilis that has spread over Europe—nor the last!

It is the opinion of Fracastoro that the pollution of the atmosphere is the cause of syphilis. The virus can enter man easily since the air not only enters the body by every pore, but is also inhaled. The causes of this atmospheric pollution, he opines, are certain untoward conjunctions of the planets, the common explanation of the time for all major natural phenomena—and reasonable enough, Fracastoro, suggests, for do not the seasons depend on the position of the sun, and the tides on that of the moon?

The aid of Apollo is now invoked in describing the symptoms of the disease, so that when it appears again it may be recognized and not considered new.

“Yet oft the Moon four monthly rounds shall steer
Before convincing Symptoms shall appear;
So long the Malady shall lurk within,
And grow confirm'd before the danger's seen;
Yet with unwonted heaviness is seiz'd,
With drooping Spirits, his affairs persues,
And all his Limbs their offices refuse,
The chearful glories of his Eyes decay,
And from his Cheeks the Roses fade away,
A leaden hue o'er all his Face is spread,
And greater weights depress the drooping Head;
Till by degrees the secret parts shall show,
By open proofs the undermining Foe;
Who now his dreadful ensigns shall display,
Devour and harass in the sight of day.

Dire Ulcers (can the Gods permit them) prey
On his fair Eye-balls, and devour their Day,
Whilst the neat pyramid below, falls mouldring away.

Whence to the Bloudless Nerves dire Pains ensue,
At once contracted, and expanded too;
The thinner Parts will yet not stick so fast,
But to the surface of the Skin are cast,
Which in foul Botches o'er the Body spread,
Profane the Bosome, and deform the Head:
Here puscles in the form of Achorns swell'd
In form alone, for these with Stench are fill'd,
Whose Ripeness is Corruption, that in time,
Disdain confinement, and discharge the slime;
Yet of the Foe would turn his forces back,
The Brawn and inmost Muscles to attack,
And Pierce so deep, that the bare Bones have been
Betwixt the dreadful fleshy Breaches seen;
When on the vocal parts his Rage was spent,
Imperfect sounds for tuneful Speech was sent.”

In advising on the treatment of syphilis Fracastoro reveals sound clinical judgment. He suggests that the physician first of all study the temperament of his patient in order to facilitate confidence and cure. To keep the patient from gloomy introspective thoughts, mild outdoor exercise in a good climate is urged. With clear appreciation of the venereal character of the disease, Fracastoro specifically cautions against spreading it through sexual indulgence:

“With lighter Labours of the Muses sport,
And seek the Plains where Swains and Nymphs resort.
Abstain however from the Act of Love
For nothing can so much destructive prove:
Bright Venus hates polluted Mysteries,
An ev'ry Nymph from foul Embraces flies.
Dire practice! Poison with Delight to bring,
And with the Lovers Dart, the Serpent's sting.”

A careful dietary regimen is to be observed, says Fracastoro, and bleeding may be employed if the patient is robust. After these general instructions, the real cure is to be secured by the use of mercury. Fracastoro states that the therapeutic action of mercury may be explained in one of three ways: (1) Mercury may immediately attack the virus and destroy it; (2) mercury may be inert, and incapable of destroying the virus until the metal has been acted upon by the human body; or finally (3) it may act upon the human body itself in such a manner that man's very self destroys the virus:

“The greater Part, and with success more sure,
By Mercury perform the happy Cure;
A wondrous virtue in that mineral lies . . .
And for a Vehicle use lard of Swine . . .

This done, wrapt close and swath'd, repair to Bed,
And there let such thick Cov'rings be o'er-spread
Till streams of Sweat from ev'ry pore you force:
For twice five Days you must repeat this Course;
Severe indeed but you your Fate must bear,
And signs of coming Health will streight appear.
The Mass of Humours now dissolv'd within,
To purge themselves by Spittle will begin,
Till you with wonder at your feet shall see
A Tide of Filth, and bless this Remedy.”

Before discussing in detail the therapy of syphilis with mercury, Fracastoro makes a long poetical digression explaining how the gods revealed to Ilceus the use of mercury for this condition. He also gives in long passages an account of the use of the “sacred wood,” guaiac, in treat-



Fig. 2.—Portrait No. 3949, National Gallery, London, supposed to represent Fracastoro. Attributed to Francesco Torbido (1486-1545), his contemporary. Courtesy National Gallery.

HIERONYMI FRACASTORII
SYPHILIS.
SIVE MORBUS GALLICUS
AD P. BEMBVM.

*Vi casus rerum uary, quæ semi-
na morbum
q Insuetum, nec longa ulli per se-
cula uisum
Attulerint: nostra qui tempesta-
te per omnem
Europam, partimq, Asia, Libyæq; per urbes
Seuget: in Latium uero per tristia bella
Gallorum irrupit: nomenq; à gente recepit.
Nec non ex quæ cura: ex opis quid comperit usus,
Magnaq; in angustiis hominum sollertia rebus:
Et monstrata Deum auxilia, ex data munera cæli,
Hinc canere, ex longe secretas quærere causas
Aera per liquidum, ex uasti per fœdera olympi
Incipiam, dulci quando nouitatis amore*
a y

Fig. 3—First page of text from Fracastoro's *Syphilis, sive morbus Gallicus*, First Edition, Verona, 1530. Courtesy Dr. LeRoy Crummer, whose beautiful large margin copy contains several pages of manuscript material in a contemporary hand apparently continuing the poem.

ing the disease as followed by the natives of America, where the wood grows, and as revealed by them to the Europeans.

The latter part of the poem is concerned with a lengthy mythical story of the shepherd of King Alcithous, Syphilis by name, who by defying Apollo in a bitter drought was punished by being the first to contract the disease.

It is easy to see how such an interesting poem, combining practical medical skill with great artistic ingenuity, should become deservedly popular. It went through very many editions, and has been translated into almost every important European language. Fracastoro's *De Contagionibus* (1546), a really great scientific contribution to medicine, deserves similar recognition, for in it is enunciated clearly the modern doctrine of the specific character of fevers, the differentiation as a clinical entity of typhus fever, and the basis of modern teaching on infection by the classification of the modes of infection. In addition to its excellent discussion of syphilis, this treatise also contains a still unappreciated, in spite of Osler's eulogy,⁴ account of phthisis.

The splendid new and complete English translation,⁵ with extensive notes and bibliographical and historical comments, of the *De Contagione*

by Prof. W. C. Wright of Bryn Mawr, makes Fracastoro's most important contribution available to modern readers. This should result in general recognition of Fracastoro's significance in the slow transition from the ancient humoral conception of disease to the present specific notion of fevers. It is heartening to note an increasing interest on the part of modern classical scholars in the scientific aspects of classical and mediæval writers. Prof. Wright's excellent effort is, let us hope, only the beginning of many similar studies in medical history.

Truly Fracastoro was a great and brilliant man: physician, poet, astronomer, physicist, and humanist. In his calm achievements, in spite of the restlessness of his age, we may, four hundred years later in a similar restless age, find much comfort and inspiration.

International Health Board, Rockefeller Foundation, 61 Broadway.

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CLINICAL NOTES AND CASE REPORTS

THE RADICULAR SYNDROME FOLLOWING INFECTION WITH TETANUS

REPORT OF CASE

By MARY LAWSON NEFF, M. D.
Los Angeles

A CASE of chronic unilateral tetanus, not conforming to any textbook description of the disease; presenting many of the symptoms characterizing the "radicular syndrome"; continuing for ninety days with steadily increasing severity; and recovering with dramatic rapidity upon the administration of tetanus anti-toxin on the ninety-first day—such a case seems of sufficient interest and importance to be reported as fully as the records make possible.

As the patient was seen and treated at different times by several physicians, and the case presented before medical groups for study, the plan of securing all available information and fusing this with the writer's own records, has been followed, and the result edited so as to make a connected account. No one physician could have supplied all the data embodied in this study.

REPORT OF CASE

A. L., an intelligent working man, aged forty-one, sought relief for what he stated had been diagnosed as a severe neuritis. His previous history was that

of a man in fair health, in spite of an arrested tuberculosis of moderate extent, and a slight heart lesion. He had worked regularly for a number of years.

When first seen, he had already been treated, apparently with massive doses of aspirin, by two or three physicians in as many localities. He was emaciated and haggard, and his story of intense suffering was easy to believe.

The pain was confined to the dorsal region on the right side, and followed a band-like zone around the trunk, indicating a radicular origin involving the roots of the fifth to the ninth dorsal spinal roots. The pain was described as acute, constant, and of a burning character, and extended slightly beyond the axillary line. It had persisted for some ten weeks with gradually increasing severity, so that sleep was well-nigh impossible. The patient stated that almost immediately upon falling asleep he would be awakened by a sensation "as if something shot me," followed by excruciating pain, and cramps in the intercostal muscles of the affected zone. Movement was painful and the area was sore to the touch.

Firm pressure on the two sides of the spine was described as producing very different sensations. On the right side the pressure seemed to penetrate deeply, and produced extreme pain. On the left side the sensation was entirely superficial. No disturbance of tactile sensation to light touch was observed, but the more delicate meticulous tests were not made. Pin-pricks produced normal pain reaction on the left side, but on the right side acute pain with muscular spasm.

Reaction to heat was normal on the left side, but painful on the right. Cold applied to the left side produced a normal sensory response, but on the right intense pain and muscular spasm.

Patient had noticed a tendency to fall when he tried to rise from bed, but no disturbance of equilibrium was found such as suggests cerebral involvement. The patellar reflex was notably exaggerated on the right side, normal on the left. No muscular atrophy was observable. No herpes occurred at any time. Dejerine's sign was not noted. Pulse and temperature were normal throughout the entire period of observation.

Laboratory findings were as follows: Blood Wassermann negative; complement fixation reactions for tuberculosis two plus positive. Spinal fluid: Wassermann and complement fixation tests negative; cell count two per cubic millimeter; protein excess negative; colloidal gold test negative. Increased pressure of spinal fluid was noted, and patient felt some relief after puncture. Urinalysis showed some increase of basic acid salts; sugar, .72 per cent; otherwise normal. Radiograph showed no evidence of bone involvement, destructive or hypertrophic, ruling out osteo-arthritis.

On the basis of these findings a tentative diagnosis of radiculitis—or the "radicular syndrome"—was made, with some symptoms not accounted for, notably the muscular spasms, which were more severe than those reported as occurring in some cases of radiculitis. An infective origin was assumed, but not till later discovered.

The patient was presented for study and diagnosis at the County Medical Society in the small city where the case was seen, and later similarly at a hospital staff meeting. As he was entirely without means, his small savings having been exhausted early in the course of the illness, he was sent to the county hospital, located some miles out in the country. Here he had good care, and was observed by an excellent diagnostician serving on the staff at the time. No further progress was made as to diagnosis.

Hydrotherapy was tried at this time, given by a competent nurse. Persistent attempts to use alternating heat and cold were finally abandoned because of the extreme suffering caused. The nurse reported that when cold was applied the patient screamed with agony, and begged her to desist. The violent muscu-

lar contractions caused included the pectoral muscles as well as those of the dorsal region.

The only symptom referable to the left side noted up to this time was reported by the nurse in this connection. When cold was applied to the left side a slight degree of hypersensitiveness was noted at the fourth dorsal root, and slight contractions of the corresponding intercostal muscles occurred.

Arrangements were at this time made to transfer the patient to a private hospital in the city for further study; and for a number of days he was carefully observed by several members of the hospital staff. By this time his condition had grown worse and a wider area of spinal roots was involved, still confined to the right side. A period of thirty-two days had now elapsed since the notes on the case were begun.

The patient stated at this time that his pain was "higher up in the spine" than at any previous time. He showed marked prostration and his condition was regarded as grave. He complained of feeling extreme cold, beginning in the right foot and then extending up the leg. This sensation was followed by the objective sign of "goose-flesh." Hyperesthesia to both touch and temperature was increased.

Suddenly the patient developed in rapid succession the following symptoms: Both tonic and clonic spasms of the muscles of the entire right side of the body occurred; the right arm became stiff and almost useless; the right leg contracted sharply from time to time; beginning involvement of the left side made its appearance; slight opisthotonos occurred; patient complained of stiffness in his jaws; a mild picture of "risus sardonicus" was observed, and the diagnosis of tetanus was of course suggested. Tetanus anti-toxin was immediately given, and recovery occurred so rapidly that the effect was indeed dramatic.

COMMENT

After the diagnosis was made, the following history was elicited. Ninety days before, the patient was injured by having the nail torn off the middle finger of his right hand while working with machinery which had come in contact with the soil. The wound became inflamed and painful. Enlarged glands appeared in the elbow and axilla, the latter "as large as a hickory nut." Slight difficulty in chewing was noticed, and some stiffness in the muscles of the right arm.

Six days after the injury sudden and acute pain was felt "under the lower ribs" of the right side, which continued without intermission until recovery. On the seventh day a chill occurred followed by fever, according to the patient's own impression. After this the finger healed rapidly, the enlarged glands subsided, and no further stiffness in the arm was noted.

The story of this infection was told to the physicians who first saw him, but on being assured that there was no causal relation between the wound and his "neuritis" the connection in his own mind faded and these facts were omitted from his history in later examinations. It was also learned that he had been refused compensation on the ground that the later symptoms bore no relation to the injury to his finger.

Before the patient left the hospital, which was within a week of the time of establishing the diagnosis, the first phalanx of the injured finger was amputated. This extra precaution seemed wise, though possibly superfluous, and followed the practice reported by an occasional surgeon.

It may have contributed to his surprisingly prompt recovery without excessive or prolonged treatment with anti-toxin. The focus of infection in this case was pouring the tox-albumin produced into the patient's body in increasing and almost lethal amounts.

In making an "ex post facto" study of tetanus, some forty-five authorities being consulted, the question of amputation of infected members or tissue proved intriguing, and some notes may be of interest. Before the days of anti-toxin, amputation was strongly urged by Berger, Dieulafoy, and Strümpell. In the *Medical and Surgical History of the Rebellion*, twenty-nine operations were reported, with ten recoveries. Yandell in addition reported seventeen cases operated with ten recoveries. Even earlier Dr. Blizard Curling in England reported seven instances of recovery after amputation; and still earlier Baron Larrey had been a conspicuous advocate of amputation. The famous Doctor Abernethy considered the "most promising expedient" to be division of the principal nerve leading from the seat of injury.

In retrospect it would seem that the diagnosis in this case might have occurred to mind earlier if it were not for the fact that in the medical teaching which most, or all of us, received we were deeply impressed with the dicta that tetanus is always bilateral and symmetrical, and that trismus is the first diagnostic symptom. One authority says, "the first, or first important symptoms of tetanus are *always in connection with the muscles whose nerves take origin in the medulla oblongata, no matter where the wound is located.*" (Italics ours.)

Some sociological interest attached to the case, since the diagnosis brought the patient's disability within the state law applying to workmen's compensation, and secured for him reimbursement for time lost, and effected his financial rehabilitation.

Hotel Trinity.

ABERRANT SALIVARY GLAND IN THE TONSIL FOSSA

REPORT OF CASE

By RULON S. TILLOTSON, M. D.
Woodland

IN view of the frequency with which the operation of tonsillectomy is performed, any abnormality, even though of rare occurrence, noted during this operation is of practical importance.

The finding of salivary gland in the tonsil fossa in the case to be reported is apparently very uncommon, judged from references in the literature. Neuman¹ has reported a case in which, following tonsillectomy, he discovered a salivary gland located above and behind the upper pole of the tonsil. The gland on removal was about the size of a prune stone and extended between the two pillars of the soft palate to the hard palate. Rather careful review of the literature has shown no other reported cases of aberrant salivary gland in the tonsil fossa.

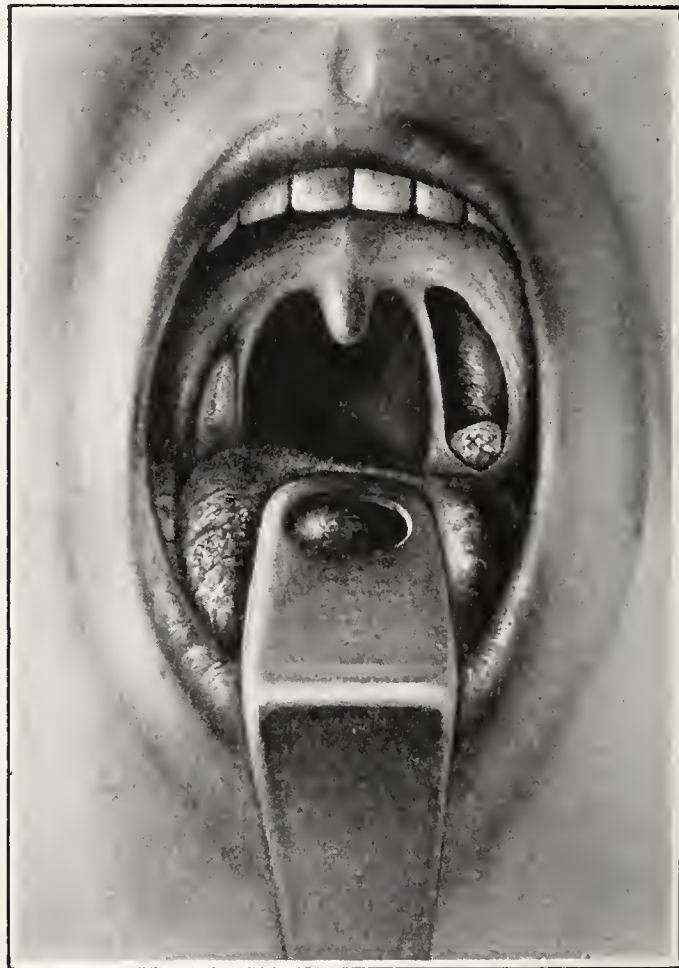


Fig. 1.—Lobular mass of salivary gland in inferior portion of left tonsil fossa noted following enucleation of tonsil.

REPORT OF CASE

An adenotonsillectomy was done under ether anesthesia on a boy of ten years, October 6, 1929. Following enucleation of the left tonsil by the dissection and snare method the fossa was inspected for hemorrhage. On retracting the anterior pillar a lobular mass of tissue was noted in the inferior portion of the fossa (Fig. 1). At first this was taken to be unremoved tonsil tissue. On dissection it was noted to extend outward and backward through a separation in the fibers of the superior pharyngeal constrictor muscle which forms the floor of the fossa. With better exposure of the mass one was impressed with its gross resemblance to salivary gland tissue rather than tonsil. A portion, approximately one centimeter in each of its three diameters, was removed with a snare (Fig 2). Further dissection and removal was considered inadvisable on account of the proximity to the large vessels and nerves in the neck.

The microscopic section (Fig. 3) of the tissue removed showed mixed salivary gland tissue, consist-



Fig. 2.—Portion of salivary gland removed with snare



Fig. 3.—Microscopic section of salivary gland tissue removed from tonsil fossa

ing chiefly of mucous alveoli. There was considerable round-cell infiltration around the secretory ducts.

This case is reported on account of its interest in diagnosis in the operation of tonsillectomy and on account of its interest as a morphologic variation of the tonsil fossa.

Woodland Clinic.

REFERENCE

1. Neuman, H.: Aberrant Salivary Gland in Tonsil, *Wien. Med. Wochenschr.*, 78, 650, May 12, 1928.

HORSESHOE KIDNEY*

REPORT OF CASE

By A. J. SCHOLL, M. D.
Los Angeles

ANOMALIES in the urinary tract of themselves are of no clinical significance. It is only when some pathologic complication occurs that their recognition becomes of clinical as well as surgical importance.

Horseshoe kidney is one of the most common of the renal anomalies. It may function normally but, owing to the unusual location of the renal mass and the deficient pelvic drainage, it is relatively vulnerable to disease and trauma.

The following case of horseshoe kidney is one in which one-half of the renal mass was successfully removed for calculous pyonephrosis.

REPORT OF CASE

A man, age thirty-seven, was referred on account of hematuria and abdominal tumor. Twelve years ago, several months after having a severe infection in the palm of his right hand, he developed a pain in the lumbar region, more pronounced on the left side but spreading over the entire lower back. This pain was fairly constant and dull, like a persistent "toothache." At times there was present another pain which was sharp, penetrating, and occurred in the left loin. This pain did not radiate, usually persisted one or two hours, and made him nauseated; the urine following one of the sharp attacks was usually dark-colored for several days. It has always been difficult for him to stand straight, a very erect position causing his pain to increase. He could stoop over and lift heavy objects readily without trouble. If he rode in a street car or an automobile it was necessary for him to put his closed fist between his back and the seat. Three months ago he stepped over a car step quickly, following which he had more pain, passed dark urine frequently and began to lose weight; he lost ten pounds in three months. Shortly after this he felt a mass in his lower left abdomen. Palpation of this mass by his doctor caused him to have a marked hematuria for twenty-four hours. There has been no dysuria or marked frequency, but for ten years he urinated once or twice during the night.

Fifteen years ago his appendix was removed for general abdominal pain. There has been no other serious illness. His physical examination was not abnormal except for

the abdominal findings. Palpation of the abdomen revealed a rounded, irregular tender mass in the lower left quadrant; it was firm, fixed, and about 15 by 25 centimeters in size. His urine was cloudy, had a specific gravity of 1020, and contained a trace of albumin, a large number of pus cells, and a few red blood cells. His blood contained 70 per cent hemoglobin, 5,000,000 red cells, and 12,000 leukocytes. His two-hour intravenous phthalein return was 65 per cent. X-rays of the urinary tract revealed a branching shadow 15 by 10 centimeters in size, opposite the third and fourth lumbar vertebrae. One segment of the stone extended downward and over the body of the fourth lumbar vertebra.

Cystoscopy revealed a moderately inflamed bladder with an increased amount of redness around the left ureteral orifice. Clear urine was spurting more frequently than normal from the right ureteral orifice. The urine was seen issuing from the left ureter during a period of five minutes; a few white flakes and a small amount of cloudy material could be forced out from the left orifice by making pressure over the mass in the abdomen. A large ureteral catheter was inserted in the right and a moderate-sized catheter inserted into the left ureter. Intravenously injected phthalein appeared from the right side in five minutes and 25 per cent of the dye was returned in fifteen minutes. Only a trace of dye appeared from the left side. The urine from the left kidney contained many pus cells, that from the right contained a few red blood cells (probably traumatic from the ureteral catheter). A right pyelogram showed that the lower pole of the kidney was opposite the fourth lumbar vertebra. There was an almost normal rotation of the right renal mass, the calices extending lateralward and anteriorly. The ureter had a high insertion on the anterior surface of the pelvis. There was no evidence of inflammatory dilatation of the pelvis or calices.

* Read before the Urology Section of the California Medical Association at the fifty-ninth annual session, Del Monte, April 28 to May 1, 1930.

Operation.—Left posterolateral incision, extending from the angle of the last rib and the spine downward and forward to within an inch of the umbilicus. The muscles of the back were very thick and solid. The posterior spinal group of muscles and the quadratus lumborum were cut through completely, the peritoneum pushed forward, and the kidney separated out. There were several anomalous vessels that were isolated, clamped and tied. The kidney was about twenty centimeters long, soft, pyonephrotic, and moderately adherent to the surrounding structures; numerous segments of calculi could readily be felt through the thin shell of parenchyma. The pelvis and ureter were thickened, dilated and located on the anterior upper surface of the kidney. The ureter was clamped, cut, and both ends tied. The posterior surface of the kidney was smooth and extended down without irregularity to the large, thick isthmus, which was felt to be continuous with the opposite kidney. The vascular pedicle was triply clamped, cut and tied and the renal mass then pushed forward so as to expose the isthmus. The isthmus was five centimeters in diameter, composed completely of parenchymatous tissue and was not furrowed by any groove or sulcus which would indicate a division point between the two kidneys. A fragment of stone could be felt extending from the left kidney into the isthmus. The commissure was cut through, a V or wedge-shaped segment being removed so as to facilitate the closure of the remaining stump; the kidney was then removed. The opening in the isthmus was closed with a continuous catgut suture. A portion of the renal capsule and surrounding fat was sewed over the stump. Two Penrose drains were inserted down to the base of the wound and the incision closed.

The patient made a good operative recovery, was out of bed on the twelfth day, and his wound healed without any urinary drainage. Eighteen months later he had gained twenty-five pounds and was in excellent health.

721 Pacific Mutual Building.

A VARICOSE VEIN INJECTING NEEDLE

By RAYMOND L. SCHULZ, M. D.
Los Angeles

THE accurate insertion of a hypodermic needle into thin-walled, tortuous varices, without penetrating both walls or having the needle become dislodged during the injection, is at times difficult. For such cases, a hooked hypodermic needle is proposed which will hang in the lumen of the vein without becoming dislodged while the patient is being placed in the desired position to continue the injection. An ordinary one-inch 26-gauge, rustless hypodermic needle with a full-

sized well-fitting wire stylette, is carefully annealed near its base and bent over the jaws of round-pointed pliers to an angle of 45 degrees or less, so that it will not become kinked. The wire can be removed readily if the annealing and bending have been done properly. The point of the needle is sharpened to a short bevel facing either side of the plane of angulation for right or left-handed operators, or toward the hub of the needle, as may be desired.

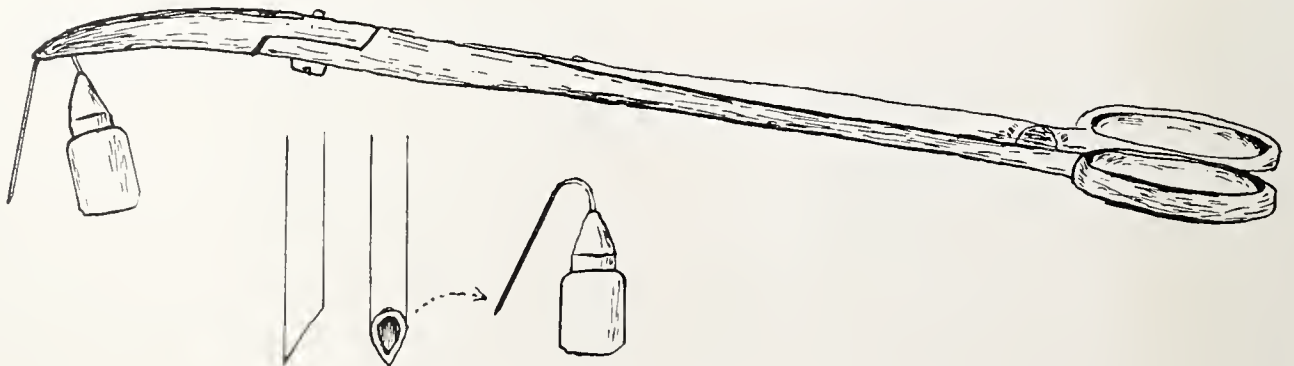
The best way to distend varicose veins is to have the patient stand. The hooked needle is held at a right angle in the end of a light mosquito hemostat which will not crush it and is inserted into the vein, point downward, according to the skill and *modus operandi* of the surgeon. The instant the point of the needle penetrates the wall of the vein can often be felt and is verified immediately by the appearance of blood at its open end. A gauze sponge should be at hand to catch the few drops of blood which escape. The hemostat is released gently, leaving the needle hanging in the vein while the patient is being placed in the horizontal position if desired.

Pressure of a finger on the angle holds the needle in place while the syringe is carefully adjusted. After the position of the needle has been verified again, this time by drawing blood back into the syringe, the injection is continued in the usual manner.

The advantages of the hooked hypodermic needle for injecting difficult varicose veins are:

1. It can be handled more delicately in a light hemostat, permitting greater accuracy in venepuncture.
2. There is less likelihood of penetrating both walls of the vein and resultant leakage into the tissues.
3. It will hang by itself without becoming dislodged while the patient's position is being changed for the injection.
4. The inconvenience of having to follow the moving of the patient with the syringe attached to the needle and losing its position are eliminated.
5. Special tables or chairs for handling the patient are not needed.

1007 Medico-Dental Building.



A varicose vein injecting needle

BEDSIDE MEDICINE FOR BEDSIDE DOCTORS

An open forum for brief discussions of the workaday problems of the bedside doctor. Suggestions for subjects for discussion invited.

STRABISMUS—WHEN TO OPERATE

RODERIC O'CONNOR, SAN FRANCISCO.—Any condition that is amenable to surgical cure should, theoretically, be operated when nonoperative measures have failed, and when further delay is apt to result in harm.

This indication is most positive in strabismus because the vision of the squinting eye is usually lost and binocular vision never learned, unless connection has been made early.

By securing early parallelism of the eyes three things are gained: (1) Vision in the deviating eye is saved unless it is congenitally absent. (2) *Normal* development of binocular vision is made possible. (3) Cosmetic improvement.

Monocular vision can be saved by persistent alternate occlusion of the eyes though few parents possess the necessary persistence.

Binocular vision cannot be trained in small children. It is best learned in the normal way.

Cosmetic Improvement.—Heretofore this has been the prime reason for operating, and so the usual practice has been to wait till the child is thirteen or fourteen years old, by which time the head has attained its full growth and there is less chance of harm resulting from the type of operation commonly used. The operation chosen is either an advancement of the tendon, or a tuck, combined with a tenotomy of its opponent. This tenotomy is wrong in principle, but has been found necessary in practice to keep the advancement sutures from pulling out. Sometimes a squint of the opposite kind is produced in which event we have a condition much harder to correct than the original.

The problem then has been to find an operation that can do no mechanical harm, thus leaving us free to attempt to do good.

Such an operation was first described by me in 1912. It is a loop shortening of the tendon without sutures. Tenotomy of the opponent is not needed in young children. *Thus the risks connected with those operations dependent on sutures are avoided.*

As the general effects of the operation itself are nil, it can be done as soon as the child can stand a twenty-minute anesthesia.

What, then, is the best plan to follow in those children whose eyes have *never been straight*? To operate early and permit the eyes to develop all their functions normally, or to wait till glasses can be fitted in the hope that they will give the desired result and that monocular and binocular vision can then be learned? A great deal to hope for! Luckily about 70 per cent of squints occur after the second year and a chance has been given to try out the nonoperative treatments.

For the past fifteen years I have been operating as close to the third birthday as possible, provided glasses have failed. In many even this early date has been too late for any functional results; all that are secured are cosmetic.

I am now of the opinion that those children whose eyes have never been straight should be operated upon as soon as they can stand the anesthetic. I feel that only in this way can such cases be given a chance for normal development of monocular and binocular vision. The question of glasses can come up after correction, as in those children who are not strabismic.

By this practice the appearance of habit contractions and relaxations, in accordance with Sherrington's law, might be prevented, these being the main causes of our troubles later on in getting good results without tenotomies.

This plan will, of course, mean some unnecessary operations but, as Deaver used to say about early appendix operations, "That which is best for the greatest number is the thing to do."

* * *

HANS BARKAN, SAN FRANCISCO.—The very question, when to operate in strabismus, means how early can or should we operate. Is any age too early? In my opinion, no, provided certain factors are present, or absent, as the case may be. The first essential needed is a proper understanding on the part of the surgeon of the physiologic and optic problems involved in strabismus; the second, a method of operating that can be used with safety at as early an age as other factors indicate operation. The first condition we will suppose to be present. The second one is met, I believe, only by the method devised by Dr. Roderic O'Connor; provided, then, that the operator has the necessary physiologic and optic knowledge, and that he is familiar with the method of Doctor O'Connor, no age is too early under certain conditions.

We will put it for purposes of illustration as we would put it to the parents of the child. If the deviating eye is losing in vision in spite of exercises or various methods of optical stimulation, operate, age indifferent. If the deviation is of permanent degree, even though slight, and not at all or only slightly correctible by glass, operate, no matter at what age. If stereoscopic vision is absent, operate and train the eyes with various methods to acquire stereoscopic vision and fusion ability.

I have operated on children of less than a year in cases where a marked deviation of one eye was present and had been present for months, due in one case, for instance, to partial congenital

cataract of one eye. Late attempts at fusion training are useless unless the eyes are parallel by operation before training. Early attempts at fusion training meet with a resistance of an impatient or willful child; all attempts at fusion training meet with indifference on the part of the patients unless results can be seen sooner, and this is only possible if the child is operated upon first, its eyes restored to parallelism, and fusion training then promptly commenced.

The older conceptions of operating late in strabismus cases were maintained mostly because methods of operating were cumbersome and uncertain, and in some cases resulted in deviation of the eye to the opposite side as the child grew up. Those of us who have used Doctor O'Connor's operation have been able to operate with safety at very early ages, know what results we will get, and can early in life give the child not only a proper cosmetic appearance but also, by proper training after the eyes have been straightened, acquire for the child the proportion of good vision of both eyes in every sense, that is, not only good central vision, but all degrees of fusion.

* * *

JOSEPH L. MCCOOL, SAN FRANCISCO.—Convergent squint in children is very prevalent. It is far too often either neglected or improperly treated. Unfortunately ophthalmologists in many instances are not entirely blameless.

Two phases of this subject should be brought to the attention of the general physician and pediatrician, and through them to the general public. First, that strabismus, or squint as it is commonly called, is a serious disease and should have prompt and early attention by an ophthalmic surgeon so that vision in the squinting eye may be saved and binocular single vision developed before it is too late; and secondly, that it is in no way amenable to cure by means of so-called "muscle exercises."

If the child shows any abnormal deviation of the eyes immediately after birth which persists through the first year and thereafter, it may safely be assumed that there is a congenital palsy of one or more of the ocular muscles. Glasses and orthopic treatment will not restore parallelism of the optic axes. Operation only can effect a cure.

If the squint does not develop until the child reaches the age of two or three years, every effort should be made by means of profound cycloplegia with atropin and glasses to relieve the squint.

It is perfectly true that orthopic training in young children, and for that matter, even in those old enough to appreciate what it means, is nearly always disappointing. For that reason I am of the opinion that as soon as the surgeon is convinced that glasses will not cure the squint, proper operative measures should be instituted. However, I cannot subscribe to the opinion that operation should be performed before glasses have been worn constantly for a year or a year and a half.

Certain types of refractive errors which cannot be discussed at length now, furnish exception to

this rule, but in the majority of cases I am sure this practice is sound.

Certainly one is never justified in advising that operation be put off until the child is ten or twelve years old. Many precious years are wasted during which one eye is hopelessly disabled and the prospect of establishing binocular single vision is very remote.

Fortunately most general practitioners and pediatricians are keenly alive to the importance of this subject, and are referring these squinting children as soon as the diagnosis is made, no matter how young they may be, to the ophthalmic surgeon, who alone is competent to handle them. The treatment, both medical and surgical, should not be attempted by anyone who is not qualified to carry it through to a successful conclusion.

A properly selected and carefully performed shortening of one or more muscles without any disturbance of the opponents is the operation of choice. In the hands of a competent operator the operation is devoid of any risk if the usual surgical precautions are taken.

Parents might possibly object to the administration of an anesthetic in children as young as four years, but they should be shown how much binocular single vision means to all of us and urged to give their children a chance to acquire it.

Tonsillectomies are recommended and performed on young children. This is sound practice. Why, then, should we hesitate to operate early for squint when so much more is involved.

* * *

LLOYD MILLS, LOS ANGELES.—The results of progress in any line filter so slowly to the levels of those untrained in that line that current practice often is decades in advance of current belief.

Popular knowledge of the treatment of ordinary "crossed eyes," for example, still is based largely upon the bad cosmetic and functional results which followed the complete tenotomies of thirty or more years ago, despite the fact that the results of modern methods consistently approach as near to perfection of appearance and function as any other corrective procedure in all surgery.

The persistence of this popular misconception has been fostered to a large extent by certain optometrists and irregulars, stimulated by exaggerated claims put forth by optical manufacturing houses in the campaign to sell their instruments for orthopic exercises. No exploitation of patent medicines ever was balder and, while the situation will right itself in time, yet thousands of eyes of children will lose central vision permanently before the return of sanity.

Nearly 80 per cent of the cases of alternating strabismus over six years of age which have come to me have been advised strongly against operation by such practitioners, and many of these cases have been treated unsuccessfully by their methods. If these persons had the least knowledge of the pathology of the conditions which they were trying to correct; if they could see thin fascial planes with thinner wisps of muscular

tissue trying to act as opponents to normal, robust muscles, and could note the abnormalities of tendon insertions alone, they would realize the absurdity of attempting anything less than surgery in such cases.

I may say with deep conviction that the great majority of the cases of strabismus upon which I have operated could never have been cured by any means other than surgery, owing to the actual mechanical defects present in the muscles, tendons, and insertions.

My own considerable experience and attitude accord in general with those of Drs. O'Connor, McCool, and Barkan. I believe that operation should be performed, regardless of age (but regarding general condition, of course) as soon as a reasonable use of fully correcting lenses proves inadequate. It has been my experience that if such lenses are ineffective within a few months they are never effective.

I believe that my own good results in this work have been the result of attempting to obtain a complete correction in every case in a single operation. I have used tendon tucking with or without graduated tenotomies as needed, and have not yet taken up O'Connor's methods, as it seemed impossible to improve much, if any, upon the cosmetic and functional results obtained by my own procedures. In fifteen years I have had only five overcorrections, all following the use of the Lowell triple tenotomy clamp, now discarded. Several years ago I reoperated successfully two cases in which Doctor O'Connor had done inadequate operations. I know the basic soundness of Doctor O'Connor's muscle work, however, and wish to add my very sincere tribute for the high plane to which he has raised the surgery of the ocular muscles.

The Life History of Cancer.—If there is one fact of which we have clear and certain knowledge, it is that early cancer is often curable. Yet in this enlightened age one is astounded at the extent to which patients will allow cancers to grow before they seek advice. They hesitate and hesitate until they are indeed lost. Whereas, if they had consulted their doctor at an earlier stage and if the doctor had known what to do, a tragedy might have been averted. The experience of all who had dealings with cancer is darkened by those tragedies of the "too late." I do not hesitate to say that many of the deaths now credited to cancer should more properly be ascribed to neglect.

One reason is that cancer casts an unreasoning dread over its victims and that dread makes them reluctant to seek advice until it is too late and the time for cure has passed. There is the dread of cancer itself and the hope that the suspicious sign will prove not to be cancer after all, if only you wait long enough. But that is the one thing you cannot do: you cannot wait.

Everyone knows that cancer is incurable when it has been allowed to go too far. And it is often allowed to go too far because of that unreasoning dread which paralyzes the will, and because of that false hope which prevents timely action. Much of that dread would vanish if the patient would grasp the truth that early cancer is far from being the hopeless thing that late cancer unhappily is. On the contrary, in most of its common positions in the body,

early cancer is wonderfully curable, even by the imperfect methods at our command, when those methods are rightly used.

It is one of the bright spots in our experience of cancer that the earlier the treatment the greater is the chance of cure, and that in all early cases there is indeed great promise of complete cure. Many persons are known to be alive and well today long after an early cancer has been removed. And of those who have succumbed to cancer, many more could have been saved if the cancer had been removed at an earlier stage. I am convinced that even now we can do something to prevent cancer and we can do much more to prevent death from cancer if the patient and the doctor do the right thing. Two conditions must be strictly observed: (1) the cancer must be identified with certainty at the earliest possible stage in its life history and (2) the treatment must be perfectly adapted for that particular type of cancer. For there are cancers and cancers.

One word of warning I must give. The diagnosis of early cancer and the treatment of early cancer both demand the highest skill of which the medical profession is capable. Do not, therefore, I entreat you, waste the precious moments during which alone a cure is possible, in seeking unskilled advice or in trying quack remedies. That is but a form of suicide—slow but sure—for delay spells death.

The Signs of Early Cancer.—The beginning of a cancer is always obscure. It is an insidious growth, well camouflaged. Often we have no means of detecting the cancer process until it has well begun, but we should be able to detect it with certainty before it has become well established. Many early cancers do not form a tumor in the sense of a lump or a mass that we can see or feel, and most early cancers are painless. Yet a danger signal is always flown—the red flag of hemorrhage, the lump in the breast, the unhealing sore about the mouth, the persistent indigestion, and so on. Now when those danger signals of cancer appear, both patient and doctor must be on their guard. A danger signal is a warning, given in order that an accident may be averted. Here the accident that we seek to avert is an unnecessary and preventable death from cancer.

It is a source of comfort, as well as a source of danger, to know that not every bleeding, not every lump, not every sore is caused by cancer. Indeed the greater number of such signs are due to conditions which are not cancerous, but which may become cancerous when they are not properly treated. Two great opportunities are given when first these danger signals appear: (1) If they are due to early cancer, opportunity is given for the cure of that cancer; and (2) if they are not due to cancer, opportunity is given to prevent cancer. The great danger comes when the patient or the doctor gambles on the chance that the suspicious sign may not be cancer or may never become cancer and takes no further trouble to make certain one way or the other. That is a danger which every patient and every doctor should face frankly and bravely, for the doctor, too, needs courage as well as special training.—David Arthur Welsh, M. D., *Medical Journal of Australia*, April 26, 1930.

Lung Cancer and Smoke.—The National Smoke Abatement Society of London has published a lecture on smoke and health, and as quoted in the *Journal of the American Medicine Association* on June 21, 1930, says that "there is evidence that smoke is a factor in the production of thoracic cancer." It is shown that the prevalence of cancer is higher in places where the atmosphere is smoke-laden. This is explained by the fact that tars and mineral oils have been shown to produce cancer. Studies of this kind in the smoke-laden atmosphere of several of the cities in this country ought to be instructive. Pittsburgh isn't the only city that offers a fertile field for investigation.—Editorial *Indiana Medical Association Journal*, September 1930.

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EDITORIALS

SOME C. M. A. MEMBERSHIP STATISTICS

Why Population Statistics Have a Bearing on Efficient Medical Organization.—Population figures, as such, seemingly could find a better place for presentation and publicity in publications other than medical journals. And yet, when a medical journal is the official publication of a state medical association, and the Association and its journal each exist as expressions of organized medicine—to the end that medical and public health standards may be better maintained and developed—it is not only permissible, but actually desirable that population statistics which have a somewhat close relationship to medical economics should be printed in the official medical publication of such a state medical association.

Such publicity calls to the attention of members of such a state medical association the status of its membership and organization work as at present existing—in relation to social and economic factors of the commonwealth—and permits likewise a comparison with conditions and figures of other periods and places. It is quite evident, therefore, that knowledge of such facts is quite necessary if organization work designed to protect the interests of the medical profession is to be carried on in broad and efficient fashion.

* * *

The 1930 Decennial United States Census.—The recent 1930 United States census statistics furnish a good basis for such a survey. The editor has therefore compiled a table, with data

taken from such census reports, and from the records of the California Medical Association and of the Board of Medical Examiners of the State of California. This table is printed in the Miscellaneous Department of this issue of CALIFORNIA AND WESTERN MEDICINE, under the caption, "Membership and Organization," and the attention of officers and members of the constituent county units of the California Medical Association who are interested in organization work, and who believe that through efficient organization scientific medicine can make its influence best felt and more safely assure for itself its future, is directed thereto. (The table is printed on page 767.)

* * *

Total Number of Licensed Physicians in California and Their Affiliations with the California Medical Association and the American Medical Association.—To begin with, there are about 9421 physicians who are licensed in California to practice medicine and surgery. In addition to these licensed physicians and surgeons there are some thousands of cultist practitioners who have secured legal recognition to practice the healing art according to their tenets, many of whom, however, seemingly practice the healing art in manner over and beyond the tenets of their cults and in apparent violation of the supposedly legal restrictions laid down by the state.

Of the 9421 practitioners in California who are licensed physicians and surgeons, some 4959 are members of the California Medical Association by virtue of membership in constituent county units of the California Medical Association. Of these 4959 California Medical Association members, some 3849 members pay dues as "Fellows of the American Medical Association," receiving through such fellowship the *Journal of the American Medical Association*. This leaves about 1110 California Medical Association members who do not take the *Journal of the American Medical Association*.

The total number of licensed physicians in California who receive the *Journal of the American Medical Association*, either as fellows or as independent subscribers, is 6151, indicating that some 2511 subscribers of the *Journal of the American Medical Association* who are not Fellows of the American Medical Association may come from the group of 4462 licensed physicians in California who are nonmembers of the California Medical Association. The fact that some 2511 licensed physicians in California who are nonmembers of the California Medical Association are sufficiently alert and progressive to subscribe for the journal of the national association would itself seem to indicate that in this group could be found a considerable number of colleagues who possess the eligibility requirements of the California Medical Association and of its constituent county units.

When the figures just given are put on a percentage basis, the approximate percentage of licensed physicians in California who receive the *Journal of the American Medical Association* is

65 per cent, while the percentage of membership in the California Medical Association to the total number of physicians in California is only about 52.6 per cent. Do not these figures show that all county units of the California Medical Association owe it to themselves and to the state as a whole to bring into membership affiliation certain seemingly eligible nonmember physicians who reside in their respective districts?

There was never a time in recent years when organized medicine so needed the coöperative aid and fellowship of every properly qualified physician, if some of the problems which are so intimately interwoven in our modern-day American living and the present-day practice of medicine are to be properly solved. If the big tasks still ahead of organized medicine are to be done, it is desirable that all qualified physicians should stand shoulder to shoulder in protection of public health and of medical practice standards. To attain such united coöperation, membership should be held in county medical and state medical societies by every properly qualified physician licensed to practice in California. The organization programs of the California Medical Association and of other state societies will only then begin to approach the one hundred per cent standard of efficiency when such affiliations have been brought about.

* * *

The California Population and the California Medical Association Membership Statistics for the Last Decade.—In the table which is printed in the Miscellany Department of this issue the percentage increases in county population and the percentage increases in county society membership furnish some interesting comparisons. The time period is practically one decade for each of the two groups.

It does not follow that the percentage of increase in number of physicians coming into a county is or should be one and the same with the increase in county population. The increase of doctors may have been more or less than such percentage would indicate, but in California it may be assumed that in most of the counties the number of new physicians for the last decade has been in excess of the percentages indicated by general population figures. Some of these percentage figures for the larger counties, where percentage comparisons because of larger numbers are apt to better reflect conditions, may be here repeated:

Alameda—Population increase, 38.1 per cent; county society membership increase, 38.8 per cent.

Los Angeles—Population increase, 135.2 per cent; county society membership increase, 60.2 per cent.

Sacramento—Population increase, 55.9 per cent; county society membership increase, 35.8 per cent.

San Francisco—Population increase, 25.8 per cent; county society membership increase, 24.2 per cent.

California Medical Association Membership Figures for the Larger California Cities.—It would have been interesting if figures could have been here presented which would have given somewhat of a picture of membership in the principal cities of California. Some of the county units may be sufficiently interested to work out such tables for the information of their own members. The United States Bureau of the Census prints such a table of population statistics for the principal cities, and because of its possible value to county society committees on public policy and legislation it is also reproduced in this issue.

The national census is taken once in ten years. Our nation deems it of importance to have such knowledge of its general and special development. It should be equally important to an organization such as the California Medical Association to compile and consider analogous statistics which have a bearing on its own present and future development. Such knowledge points the way to the places where work for the today and the tomorrow may be pushed to advantage. On that account the statistical presentation above referred to may be worthy of inspection and perusal.

THE FIRST AMERICAN DOCTOR IN CALIFORNIA, JOHN MARSH—AN HISTORICAL CONTRIBUTION TO THE MEDICAL HISTORY OF CALIFORNIA

"John Marsh, Pioneer," a new book by Dr. George D. Lyman of San Francisco.—Our colleague, Dr. George D. Lyman of San Francisco, has just brought off the press a notable contribution bearing on the history of California in a book of some 394 pages to which he has given the title: *"John Marsh, Pioneer."**

The significance of *"John Marsh, Pioneer"* in the history of medicine in California is revealed in Chapter XXVIII of Lyman's book, the caption of which reads: *"First American Doctor in California. El Pueblo de Nuestra Senora, La Reina de Los Angeles."*

* * *

The California Career of Doctor Marsh.—It is true that Doctor Marsh, a descendant of an old Salem, Massachusetts, family, was not a graduate in medicine, his only degree being that of Bachelor of Arts as a member of the Class of 1823 at Harvard University. (See footnote.—Ed.)

But because he had aspired for years to study medicine, and had really read and practiced medicine in Illinois and Minnesota, in what was then the western frontier of the United States, and perhaps because he was an adventurer with the scruples of such a one, he did not hesitate to submit, on February 18, 1836, to the Ayuntamiento (the Town Council) of Los Angeles a letter asking that he be permitted to practice as a physician and surgeon.

This permission was granted him by the Ayuntamiento on February 15, 1836, probably on the

* *"John Marsh, Pioneer,"* The Life Story of a Trail Blazer on Six Frontiers. By George D. Lyman. New York, Charles Scribner and Sons, 1930. Price \$3.50.

basis of his A. B. diploma which was in Latin and which was sent to the mission fathers at San Gabriel and found to be satisfactory. At the end of a year or so this first American medical man in California went north to the valley of the San Joaquin, where he purchased, at the base of Mount Diablo, a large land grant from one José Noriega. Here Marsh, as occasion suited, was a planter, a trader or a physician, until he came to his death in the year 1856.

The story which Lyman has woven about John Marsh is most fascinating, and its historical accuracy is evidenced by some forty pages of references, which the author has keyed into the text.

To the editor the persusal of this volume was of special interest because more than twenty years ago, in a "*History of the Medical Profession of Southern California*," through the courtesy of the late H. D. Barrow, Esq., the editor was able to present a brief sketch of John Marsh. At that time he did not know what a notable and unusual career had been the lot of Marsh.

* * *

Increasing Interest in the Medical History of California.—It is gratifying to note that gradually an increasing interest is being taken in the medical history of California. A most interesting and valuable article on "Medicine and Surgery Among the First Californians," from the pen of the late Dr. Cephas L. Bard, who practiced in Ventura and who was a brother of United States Senator Thomas R. Bard, was recently reprinted in the January, 1930, issue of "*Touring Topics*," the official publication of the Automobile Club of Southern California.

Editor's Note.—The first medical practice or licensure act of California became a law on April 3, 1876. Even at that comparatively present-day period provision was made to grant the legal right to practice to citizens who were not graduates of medical schools, and John Marsh made his advent into California in 1836, or forty years prior to the Practice Act of 1876. The following excerpts were taken by the editor from the official, year 1878, "Catalog of Regular Physicians and Surgeons who have presented their Diplomas and other Credentials to the Board of Medical Examiners of the Medical Society of the State of California." From the preface of that volume is taken the following paragraph:

"The Legislature of California, at the session of 1875-6, being impressed with the great necessity of protecting the health and lives of the community from ignorance and imposture of pretended physicians, enacted a law for that purpose, providing for the appointment of medical examiners, who should be authorized to determine, in accordance with the provisions of the aforesaid enactment, what persons are duly qualified as practitioners of medicine and surgery."

And from the law, "An Act to Regulate the Practice of Medicine in California," the following reference to nongraduates of medical schools is taken:

"Sec. 5. All examinations of persons not graduates or licentiates shall be made directly by the board, and the certificates given by the board shall authorize the possessor to practice medicine and surgery in the State of California; but no examination into the qualifications of persons not holding diplomas or licenses shall be made after the thirty-first day of December, eighteen hundred and seventy-six. After that date no certificates shall be granted by them, except to persons presenting diplomas or licenses from legally chartered medical institutions in good standing."

In looking up the antecedents of that manuscript, the editor discovered that Dr. Bard's paper was read by him in 1894, as his retiring address as president of the Southern California Medical Society, and that it was originally printed in the *Southern California Practitioner* of August, 1894.

The editor of "*Touring Topics*" happened on a copy of the article in the Ventura County Historical Museum and was so impressed with its worth that he had line sketch illustrations drawn therefor for reprinting in his own publication. The re-discovery of Bard's paper would indicate that here and there in California are bits of historical records having to do with medicine which would make interesting reading if brought to light.

The present chairman of the California Medical Association standing committee on history, Dr. C. D. Ball of Santa Ana, several years ago brought off the press the "*Orange County Medical History*." More recently, Dr. George L. Cole of Los Angeles has been presenting in the "*Bulletin of the Los Angeles County Medical Association*" a series of biographical sketches with illustrations of Los Angeles medical pioneers that are of real interest. Again, up at Sacramento, one of the attaches of the Department of Public Health of California, Mr. Guy P. Jones, has practically completed the copy for a volume on public health activities of the past. This work of Jones' should also be of interest and value, for the far western California had the honor to be the third commonwealth in the entire United States to institute a state public health department.

* * *

Every County Society Should Have Its Committee on History.—Mention is made of these matters in the hope that every county medical unit of the California Medical Association will see fit, at one of its early meetings, to provide for the appointment of a special committee on history, with instructions to gather together all available historical medical records and to compile general and biographical historical sketches therefrom. The California Medical Association is itself making an effort to gather together its own material and memorabilia for similar purposes.

In a few more years all colleagues who still have a first-hand knowledge of the early days of medical practice in California will have passed from among us. Let us seek out these confreres and urge them to transcribe their past experiences and reminiscences to paper. Then those who come after will be able to live over again, somewhat, the days of long ago.

What Lyman of San Francisco has done, can be duplicated in lesser but in no less interesting fashion by others. The guild of the healing art has a history that is everywhere alive with traditions of service. And in our own country, nowhere do such traditions of service stand out in nobler relief than when shown on a background such as the pioneer period of California can furnish.

ANATOMY ACTS OF CALIFORNIA

Study of Anatomy a Basic Requirement in a Medical Course.—The heading for these comments is the caption of an article from the pen of Professor A. W. Meyer of Stanford. The article has a place among the special articles of this issue of CALIFORNIA AND WESTERN MEDICINE. In addition to the article as there presented, the present anatomy act of California, which became a law in 1927, is printed in the Miscellany Department in this number of CALIFORNIA AND WESTERN MEDICINE (pages 703 and 768).

This attention is called to Meyer's contribution because it is the first authentic statement to be printed which outlines the history of anatomy acts in California, and also for the reason that in California, as in other states, members of the medical profession, by and large, have altogether too limited a knowledge of this phase of anatomical study, which is so important and basic in all proper medical training.

It may be said that modern-day scientific medicine is especially differentiated from the training of years and years ago by the emphasis which is placed on an accurate knowledge of the structures of the human body. This knowledge cannot be properly acquired except through painstaking first-hand dissection study and experience. In fact a modern-day surgeon cannot be properly trained unless he has a particularly comprehensive and accurate knowledge of human organs and tissues. For the acquisition of such knowledge, an adequate supply of dissection material is a fundamental necessity.

* * *

Difficulties Encountered in Securing the Present Anatomy Law.—Professor Meyer tells the story of the scarcity of anatomical material in California in the days gone by and mentions some of the difficulties which were encountered when the present anatomy act was first introduced at the California legislative session in 1921. The narrative of the treatment of this bill and its successors by a recent California governor who, for reasons known only to himself, used his veto power to prevent the medical profession and medical schools of California from securing the anatomical material which was deemed necessary, while not gratifying, is illuminating.

Without such a supply of anatomical material it was virtually impossible for California to give satisfactory instruction to its matriculants in medical colleges. The attitude and opposition of this former governor, who is still more or less of a political power in California, should cause physicians who have had little actual experience in working for public health and similar legislation, to appreciate how much effort and time must sometimes be used by those colleagues who bear the brunt of the responsibility in securing legislation that is needed for the proper protection of the public health. It will always be to the credit of Governor Young that when the bill was presented to him in 1927, after its fourth introduction and its third passage in the legislature, he gave it his prompt approval and signature.

How Medical Schools of California Were Handicapped Only a Few Years Ago.—Members of the California Medical Association who have affiliations with the medical schools of California know somewhat of the difficulties of only a few years ago, when, because of the scarcity of anatomical material, it was found impossible to give to a considerable number of freshmen and sophomore medical students the dissection material and instruction as laid down by the Association of American Medical Colleges and the Council of Medical Education of the American Medical Association, so that special dispensations were required from those organizations which permitted such students an additional amount of time in which to do their dissection work.

At that time, as a member of one of the committees having the matter in charge in southern California, the editor wrote to the eastern headquarters of several national medical and surgical organizations for information concerning anatomy laws in other states, and was more than surprised to learn how little first-hand knowledge of this important subject the representatives and executives of these organizations seemed to have. This was the more surprising because these organizations had presumably dedicated themselves to the production of better physicians and surgeons. It was necessary to carry on a correspondence of weeks to secure copies of anatomy acts of other states. As a matter of fact, in all our current medical literature there have been almost no articles on this subject. The presentation by Professor Meyer therefore should be of special value not only to Californians, but also to members of teaching faculties in other states.

* * *

All States in the Union Should Endeavor to Secure Proper Anatomy Laws.—The old prejudices against the use for dissection purposes of the bodies of deceased persons still exist, not only in our own, but in many of the European countries. Much tact is therefore necessary in securing needed legislation, for reasons such as are indicated in Meyer's article. It is desirable that the basic legislation should be in operation in practically all states of the Union because the people at large are entitled to professional services from properly trained and skilled physicians and surgeons, and such training requires accurate anatomical knowledge, which can be gained, not from text books, but through actual first-hand work and study at the dissection tables.

California is to be congratulated that Professor Meyer and his co-workers, in spite of their many discouragements, carried on in their legitimate endeavors until they obtained the enactment of a law that permits the important subject of anatomy instruction to be placed on a much better basis for our medical colleges than has heretofore existed in California. The story as told by Meyer should be of interest to all who have at heart the maintenance and advancement of standards in medical training and practice.

MEDICINE TODAY

This department of California and Western Medicine presents editorial comment by contributing members on items of medical progress, science and practice, and on topics from recent medical books or journals. An invitation is extended to every member of the California, Nevada and Utah Medical Associations to submit brief editorial discussions suitable for publication in this department. No presentation should be over five hundred words in length.

The Treatment of Poliomyelitis.—Numerous reports have called attention to the methods of diagnosis and treatment of poliomyelitis, but it may be worth while to consider the results obtained in a series of local cases. It may be remembered that an opinion was expressed, in reporting some of these cases previously,^{1,2} to the effect that intramuscular administration of convalescent serum is preferable to intraspinal treatment in that it is simpler, less risk to the patient, and is, at least, equally effective. This opinion has had ample support, most notably from the Toronto observers.³

The group treated in the Children's Hospital, San Francisco, during the years 1924-1930 (chiefly 1925, 1927, 1930) comprises 112 cases or nearly half of the 253 cases reported in San Francisco during this period. These may be considered as:

I. *Those treated before any paralysis could be detected* (the preparalytic cases). There were twenty-three patients diagnosed and treated during this stage, in none of which was there any persistent paralysis, although about one-third had slight weakness for a few days. In all but four of these, diagnosis was positively confirmed by spinal puncture. Diagnosis of poliomyelitis rests on the following features, any or all of which may be present: 1. *Epidemiology* (a) the existence of an epidemic; (b) definite history of exposure (eight of these cases). 2. *Symptoms*, in order of frequency—fever, headache, pain in the extremities, paresthesiae, dizziness, nausea and other gastro-intestinal symptoms. 3. *Signs*, the most important being those of meningeal irritation, neck stiffness, usually of slight but definite degree, rigidity of lower spine, Kernig sign, slight differences in tendon and superficial reflexes. During epidemics in the presence of even slight fever, the least degree of neck stiffness is significant and should never be ignored (it all too frequently is) and justifies lumbar puncture. Meningeal irritative signs may rarely be absent during this stage; their absence makes early diagnosis difficult. Repeated examinations of doubtful cases will often reveal slight neck stiffness, especially if the patient is caused to sit up in bed. Several other conditions will produce this symptom complex; occasionally the patient is erroneously treated with convalescent serum before the diagnosis can be cleared up. Usually lumbar puncture

and further clinical observation will render the diagnosis clear. Admitted to our series as possible poliomyelitis have been cases which have proved to be: pneumonia with meningismus, tuberculous meningitis, spinal cord tumor, transverse myelitis (poliomyelitis?) cerebral hemorrhage, endocarditis with embolism, cervical adenitis, and otitis media. 4. *Laboratory findings*—chiefly represented by spinal fluid examination. The fluid is withdrawn with great care to avoid bleeding, it emerges under normal or slightly increased pressure and is clear or ground glass in appearance. Cell count is usually slightly increased, about 200 to 300 cells, in two or three cases (paralytic) as low as 10 and in some as high as 600. Cells tend to be mostly polymorphonuclears early, lymphocytes predominate later, but the differential count does not positively determine the stage of the disease. Globulin is usually increased, sugar normal. Gold (Lange) curve shows an early slight rise. Smears should always be examined for organisms and culture made; they are negative in poliomyelitis.

Treatment consists of the intramuscular administration of convalescent serum at the earliest possible moment, ranging in amount from a minimum of 30 cubic centimeters for a small child to 100 cubic centimeters for an adult. Sera from convalescents unquestionably vary in potency. Having given a patient one injection, its efficacy should not be absolutely relied upon, and unless some improvement in temperature and other signs appear in from twelve to twenty-four hours, more serum from another source should be given. We have given as many as four injections at twelve-hour intervals; one extremely ill patient was transfused from a matched early convalescent donor. In emergency citrated whole blood may be given intramuscularly.

There are several deductions that should *decidedly not* be drawn from the statement that all our cases treated preparalytically recovered unparalyzed. First, this should not be taken as a statement that all cases can be diagnosed before the onset of paralysis. It is our belief that any observer, no matter how competent, will fail to make a diagnosis before the onset of paralysis in a small proportion of his cases. We believe, however, that this number should be relatively small. Second, one should not reach the conclusion hastily that *all* cases treated early necessarily escape paralysis. The extent of involvement varies greatly; certain cases are doubtless from their onset too profound and overwhelming to be successfully treated (comparable cases of malignant diphtheria do not invalidate the potency of

¹ E. B. Shaw, H. E. Thelander and E. C. Fleischner. J. A. M. A. November 1925, vol. 85, pp. 1555-1558.

² E. B. Shaw and H. E. Thelander. J. A. M. A. June 1928, vol. 90, pp. 1923-1927.

³ J. M. McEachron, B. Chown, Lennox G. Bell, Mary McKenzie. Canad. M. A. J., 20, 369-370.

diphtheria antitoxin). There is, furthermore, no feasible method of testing the potency of serum and confidence may readily be placed in convalescent serum which might show no neutralizing power if tested on experimental animals. When all is said, our knowledge of the virus and of the antiviral is not sufficiently extensive for anyone to enumerate the precise factors governing success or failure. Even the curative value of convalescent serum may not be regarded as proved. In all probability a greater degree of success accompanies the case of blood serum freshly obtained from recent convalescents, and the successive use of serum from several convalescents is the preferable treatment of the severely ill case. Pooled, stored convalescent serum has, on the other hand, the inestimable value of being available promptly when need arises. Third, we must not be interpreted as saying that all cases diagnosed before the onset of paralysis would go on to paralysis. It might be argued, not unreasonably, that those cases which are recognized early and which, following serum administration, recover without paralysis, are simply by their nature nonparalytic. With this point of view we strenuously disagree, yet it must remain a matter purely of opinion, to be judged at present only by comparison with the history of the early stages of illness in paralyzed and treated nonparalyzed cases. It can only be said that cases admitted to the hospital badly paralyzed, not having received serum, usually have histories of onset and early period of the attack which sound identical with or less severe than others which entirely recover following serum therapy without paralysis. It would be absurd to say that all of the treated cases would surely have gone on to paralysis or death, but it seems equally unfair to say that all would have recovered completely. We believe that some of this preparalytic group would have recovered without serum and that others would have gone on to paralysis or death; the proportion of each is a matter of conjecture.

II. *The early paralyzed group* (in this series thirty-three), those still showing rise in temperature. These cases are naturally less amenable to serum, much damage is already done, the virus is fixed in the central nervous system and probably excluded from general circulation by inflammatory edema and ischemia. It is, furthermore, very difficult to judge the effects of serum; one tends, unless a carefully critical attitude is maintained, to credit serum for natural recuperative efforts. Nevertheless, in view of the results in preparalytic cases, serum should be given at least a trial in paralyzed patients who still have fever, not withholding it simply because the patient is in a less favorable stage for treatment. In view of the difficulty of procuring serum, it should not be given for more than one or two doses; usually by this time the disease has greatly subsided. Over-enthusiasm and post hoc, propter hoc exuberance may lead to errors of interpretation, but it is our feeling that if serum is given early in the paralytic stage improvement and arrest of further paralysis often results.

Of special note in this early paralytic group should be mentioned those which show slight bulbar signs immediately following the initial rise in temperature. It has been true in this series that with bulbar involvement some weakness was evident from almost the moment of onset and a true paralytic stage was lacking. These cases constitute a special group characterized by fever, very slight neck stiffness, early weakness of eye or facial muscles, deviation of the tongue, difficulty in swallowing, accumulation of foamy saliva in the back of the throat, nasal speech, etc. Spinal fluid often shows a low count. These patients should be treated intensively throughout their febrile period; the mortality rate is highest in this group.

III. *Of the late paralyzed, afebrile patients* little need be said with regard to serum therapy. They should not receive serum, but may serve as sources for serum while receiving careful orthopedic treatment to prevent pull on damaged muscles, contractures, etc. Chiefly it should be said that these do not represent controls from an experimental viewpoint of those who are treated early. One may compare their early histories with those treated preparalytically and draw certain deductions, but must avoid numerical, statistical comparisons between patients seen and treated early and those seen later and untreated.

E. B. SHAW

H. E. THELANDER

San Francisco.

Radium in Hemorrhagic Conditions.—Conditions associated with subcutaneous and submucosal hemorrhages have always been puzzling from an etiologic and therapeutic standpoint. Likewise, the occurrence of hemophilia with its hemorrhage as a sequence of trauma has been a serious matter. Various therapeutic methods, such as subcutaneous injections of thromboplastic preparations and horse serum, intravenous injections of calcium salts and gelatin solutions, and finally transfusions of whole blood, have been tried. The success in combating the bleeding has been variable, but even with the most careful and active treatment the condition has frequently gone on to a fatality.

In a recent publication Hoffman¹ calls attention to the use of radium applied over the spleen in hemorrhages of the new-born and in hemophilia. What takes place is not known, but after a few hours the bleeding ceases. Gynecologists interested in radiation therapy, notably Werner, have observed that menorrhagias of unexplained origin are stopped or greatly lessened by x-ray therapy given in small doses over the spleen or liver. In hemophilia, however, we have a condition that is different from that seen in menorrhagia, so the *modus operandi* must be different, although the results accomplished are the same. The result of treatment is a shortening of the coagulation time and improvement in symptoms.

¹ Hoffman. Radium in the Treatment of Diseases with Subcutaneous or Mucous Membrane Hemorrhages. Preliminary report, Radiology, February 1930.

Where exsanguination is great, nothing can replace transfusion; nevertheless, it will be well to remember the use of radium as an emergency measure. It is easily applied and, in the dosages Hoffman administers, is without danger.

ORVILLE N. MELAND, Los Angeles.

Artificial Diphtheria Antitoxins.—Traditional immunology pictures specific antitoxins as preformed, hereditary, specific intracellular antidotes, quantitatively increased and liberated into the blood stream as a result of toxic assault. With this conception of antibody formation, a test-tube synthesis of diphtheria antitoxin is inconceivable, without previous detailed knowledge of its exact chemical composition.

The newer immunology,¹ in contrast, pictures antitoxins, not as preformed hereditary antidotes that need but to be quantitatively increased to give immunity, but as absolutely new biochemical complexes resulting from chemical interaction between toxins and normal humoral or cellular proteins. Or, in the words of some of the newer immunologists, they are nonspecific hereditary defenses metamorphosed or "hybridized" into defenses of specialized function. Even without knowledge of the exact chemical nature of diphtheria antitoxin, this conversion of a normal nonspecific defense into a specialized diphtheria antibody might conceivably be effected in the chemical laboratory.

Inspired by this newer concept, Ostromyschlenki and Petroff incubated a mixture of diphtheria toxin and normal horse serum and found, as they had hoped, that the resulting test-tube "conjugates" are specifically antitoxic.² During the last two years this observation has been confirmed by Kryshanowski,³ who was able to synthesize two different diphtheria antitoxins by substituting individual serum proteins for whole serum. By incubating a mixture of diphtheria toxin and commercial trypsin, Shrawosmisslow⁴ and Kimmelstiel⁵ obtained "toxin-trypsinates," which in their hands were also specifically antitoxic. Artificial diphtheria antitoxin made by a combination of these two methods, *i. e.*, by incubating a mixture of diphtheria toxin and normal horse serum in the presence of commercial pancreatin is at present covered by patent in Germany.⁶

Of course, it is not as yet proved that these synthetic antitoxins are identical with the natural antitoxins formed in the animal body,⁵ but there

is suggestive evidence that some of them may be even superior to those formed by nature.² Successful artificial human convalescent antitoxins made from carefully typed human blood, with the hoped-for elimination of all allergic reactions, is a logical goal for future research.

W. H. MANWARING, Stanford University.

Diagnosis of Allergic Rhinitis.—The diagnosis of nasal allergy is based on (1) the history of local symptoms and the local physical findings, (2) the allergic state of the patient. The first requires a thorough knowledge of the standard methods of rhinologic diagnosis and the second, of the principles of immunology.

Eyerman states that there are three methods of investigation on which to base the diagnosis of allergy: (1) an exhaustive and detailed clinical history, considering the presenting symptoms, the family history, the environment and the diet of the patient; (2) sensitization tests properly performed and interpreted; and (3) the demonstration of eosinophils. These are given in the order of their importance.

The acute and seasonal cases with a history of paroxysms of sneezing, obstruction, a watery discharge and edematous mucous membrane, are likely to be confused only with an acute cold. However, the malaise and increased temperature at the onset of a cold followed by a characteristic process of evolution and return to normal in about two weeks is seldom seen in allergic conditions.

When the condition is chronic and hyperplasia of the membrane or polypi are present we must differentiate between an allergic condition and a primary suppuration. The primary suppurations are often unilateral, the edema is limited to the region of the infected cells, and the discharge varies from pure pus to a mixture of pus and mucus. It rarely contains eosinophils. In allergy the lesions are almost always bilateral and involve the whole lining of the nose. The discharge is watery or mucoid and often contains eosinophils. The history alone is often enough to distinguish between the two conditions.

When a combined suppurative and allergic process is present the primary process must be determined by the history. It is probable that most of these are primarily due to allergy and the infection due to the obstruction to ventilation and drainage. This is shown by the number of sinus infections that clear up when allergic conditions are corrected.

The exciting factor may often be determined by the skin tests, or it may be necessary to resort to a process of elimination such as a change in environment, or a study of the diet as has been suggested by Rowe.

H. P. MERRILL, Los Angeles.

1 Manwaring, W. H. A Critique of the Ehrlich Theory, with an Outline of the Enzyme Theory of Antibody Formation—The Newer Knowledge of Bacteriology and Immunology. University of Chicago Press, 1928, chap. 81, p. 1078.

2 Ostromyschlenki and Petroff. *Rus. Gesel. f. physical. Chemie*, 47, 263, 1915.

3 Kryshanowski, W. H. *Centralbl. f. Bakteriologie*, 110, 1, 1929.

4 Shrawosmisslow, W. H., and Kostromin, N. E. *Ztschr. f. Immunitätsforsch. u. exper. Therap.*, 54, 1, 1927.

5 Kimmelstiel, L. *Ztschr. f. Immunitätsforsch. u. exper. Therap.*, 62, 245, 1929.

6 Pat. No. 392055, Class 30 h, Group 6.

STATE MEDICAL ASSOCIATIONS

CALIFORNIA MEDICAL ASSOCIATION*

LYELL C. KINNEY President
JUNIOUS B. HARRIS.....President-Elect
EMMA W. POPE Secretary

COMPONENT COUNTY SOCIETIES

CONTRA COSTA COUNTY

The Contra Costa Medical Society resumed its regular monthly meetings on September 11 at the Hotel Carquinez at Richmond.

The scientific program featured the industrial problem of medical practice. An informal discussion of the various chemicals encountered in industrial practice was held. The symptomatology, differential diagnosis and treatment of lead poisoning was discussed by those present. Proper control of this industrial hazard through monthly examinations of the exposed workers and the importance of coöperation on the part of employers in carrying out the preventive measures were stressed in detail. Dr. J. W. Bumgarner of Richmond opened the discussion.

A paper on "Fractures Involving Joints" was presented by Dr. L. H. Fraser of Richmond. A description of the modern methods of handling the various types of joint fractures was presented. The importance of accurate and complete reduction with sufficiently long periods of immobilization and the early institution of physiotherapy in the form of massage, passive and active exercises, and heat locally, was stressed.

A large attendance enjoyed the meeting and the refreshments which followed. A symposium on obstetrics and gynecology was announced as a program of the next meeting.

L. H. FRASER, *Secretary*.

FRESNO COUNTY

The regular meeting of the Fresno County Medical Society was held at the California Hotel September 9.

The application of Dr. George B. Dewes of Fresno for a transfer from Tulare County Medical Society was read. It was moved by Doctor Dau, seconded by Doctor Jorgenson, that the transfer be made. Motion carried.

Applications of Dr. R. A. Hunt of Riverdale and Dr. L. R. Nielson of Fresno were read.

The committee investigating the situation at the County Hospital, Doctor Trowbridge, chairman, reported progress and asked for an extension of time, which was granted.

The report of the Publicity Committee, Doctor Mitchell, chairman, was read. Because of the high cost of radio talks over local stations, it was moved by Doctor Mitchell, seconded by Doctor Scarboro, that the matter be laid on the table. Motion carried.

It was moved and seconded that the president appoint three members to reorganize the constitution and by-laws of the society.

The president appointed Doctors Mitchell, Scarboro, and Madden.

A very interesting discourse was given by Dr. Harold Brunn, clinical professor of surgery at the University of California. Doctor Brunn spoke on the early respiratory complications following operation.

*For a complete list of general officers, of standing committees, of section officers, and of executive officers of the component county societies, see index reference on the front cover, under Miscellany.

He showed many slides illustrating the incidence of atelectasis which results from a plugging of the bronchi. He described the results which can be obtained in these cases by removing the mucoid material by means of a bronchoscope.

J. M. FRAWLEY, *Secretary*.

ORANGE COUNTY

The regular monthly meeting of the Orange County Medical Association was held at the American Legion Hall, Santa Ana, on Tuesday, September 2, at 6:45 p. m. The American Legion Auxiliary served a very delightful dinner to approximately forty members. Following the dinner the meeting was called to order by President Robertson, and the minutes of the previous meeting read and approved.

Two interesting cases were shown before the society: one of leprosy from the Orange County Hospital, and the other a case of severe varicose veins before injection treatment.

The readings of five applicants for membership were heard for the first time. They were the following: Edith S. Spence, Harry H. Jacobs, Julius C. Osher, H. Holmson, Roland J. Harvey.

The secretary reported on the cost of county auto emblems, stating that in order to obtain the official American Medical Association emblem with the name of our county imprinted over the top it would be necessary to order at least fifty. It was moved and seconded that those who desired to purchase emblems, place their names with the secretary.

Very interesting talks by Doctors H. A. Johnston, D. A. Harwood, Bessica Raiche, and G. L. Kay were given concerning their trips East this summer. Doctors Johnston and Harwood stressed the importance of spinal anesthesia as given at the Mayo Clinic; Doctor Raiche talked on nonmalignant nodules of the breast in young girls, and Doctor Kay showed some very interesting slides of his trip to the eastern coast.

The speaker of the evening was Dr. James Farrage of Santa Ana, who gave a very vivid and realistic reproduction of the heart beat by means of his phonographic records taken at the clinic of Dr. Richard Cabot. Various records illustrating the heart beat in the normal heart, in mitral and aortic disease, and in functional conditions were heard.

Following the speaker, Dr. R. A. Cushman gave a short talk, stressing the importance of keeping in touch with medical legislation. He suggested that at some future meeting our local state senator and assemblyman be given an invitation to attend, and that we outline some of the problems confronting the medical profession.

HARRY G. HUFFMAN, *Secretary*.

SAN JOAQUIN COUNTY

The stated meeting of the San Joaquin County Medical Society was held Thursday evening, at eight o'clock, September 4, at the clubrooms in the Medico-Dental Building. The meeting was called to order by Dr. Harry E. Kaplan, president. The minutes of the June meeting were read and approved.

A letter from the secretary of the California Medical Association recommending a change in the local constitution to correspond with the State Society in the matter of lapsing membership on account of failure to pay dues was read. On motion of Dr. Dewey R. Powell, duly seconded and carried, the local secretary was ordered to draw up the amendment to conform to the rules and submit it in writing to the members.

There being no further business the scientific program, a symposium on tuberculosis, was opened with a paper by Dr. Chesley Bush of the Arroyo Sanatorium on the subject of "Tuberculosis in Childhood." The doctor said that they had learned that physical signs are important by their absence in juvenile tuberculosis. Even up to 1925 the x-ray findings were in error because they stressed the importance of peribronchial infiltrations which we now know were confused with blood vessels in lateral views and calcifications with blood vessels in cross section. We must now base our diagnosis on parenchymal lesion or swollen glands when visible. In one particular spot the roentgenologist has learned to look for evidence. This is a swollen gland which bulges the mediastinal pleura in the right hilum at the upper pole. In conclusion, the doctor said that the child with a tuberculous lesion need not be underweight, have a cough, or appear to be very sick. He is found most often as a contact with an open case of adult tuberculosis. He is positive to tuberculin skin test if such is repeated up to doses of one milligram in over 95 per cent of the cases, and x-ray will reveal parenchymal lesions or glandular pathology. He is often negative as far as physical signs are concerned. No diagnosis of children's chests can be made without an x-ray and a tuberculin test.

Dr. Clifford Mason of Arroyo Sanatorium demonstrated a series of x-ray plates to show the points brought out in the preceding paper.

"The Importance of History Taking" was presented by Dr. Thomas C. O'Connor of the Bret Harte Sanatorium. He made the point that symptomatology in tuberculosis points to future damage, whereas physical signs and x-ray infiltrations are evidence of mischief already accomplished. He divided the history taking as follows:

Family history: A contact is invaluable as it means in your patient's case the same as all the physical diagnosis, laboratory findings, and x-ray evidence, because the diagnosis is made. This is nature's first warning.

Past history must not be neglected in the many details of loss of appetite, nervousness, malaise, inability to concentrate on mental tasks, voice tire, husky voice, clearing of throat, loss of weight, night sweats, afternoon temperature, gastric disturbances, dysphagia, pleurisy, and hemoptysis. All of these must be inquired about. Herein lies nature's second warning.

Finally, we come to his present illness, which is the third warning and fits in nicely with the other two.

This paper was illustrated with carefully selected x-ray plates to demonstrate frank cases of tuberculosis discovered through careful history and others missed by disregard of such evidence.

Dr. Edward A. Schaper presented the subject of "Physical Diagnosis." He said that each patient presenting himself for examination usually thinks he has the disease. He usually complains of one or more of ten things, namely: cough, malaise, fever, expectoration, loss of weight, loss of appetite, shortness of breath, pain in chest, hemoptysis, or night sweats. In making a diagnosis, history of contact of first importance is that of history of contact with another active case which is found in at least 50 per cent. Occupation is unimportant, for active cases often occur in the out-door laborer.

Examination of the chest reveals more important evidence in the form of râles by auscultation than any signs noted by percussion or other means. The x-ray is gaining in importance, and in the presence of other suspicious evidence is often the convincing bit. Positive sputum is difficult to get, especially in the early cases. Finally, a good temperature record for from two weeks to two months may be all important.

Dr. Robert A. Peers of Colfax presented the final paper on a unique subject, "What to Tell the Tubercu-

lous Patient." His talk was based on the four leading questions which nearly every patient asks:

First: "What is my illness?"

In answer to this tell him the truth. Perhaps not the whole startling truth at once, but gradually he must know the truth in order to get his coöperation in the fight against the disease.

Second: "I haven't much, have I? Just a little bit?"

Again tell him the truth as to the seriousness of his case. This need not discourage him, as many patients in advanced stages recover with the right coöperation. Prepare him for the possibilities of extension so that he will not lose faith in you if the disease progresses or new manifestations occur. Truth most often wins the patient's confidence and intelligent coöperation.

Third: "Am I going to get well?"

This no one can tell because of the unknown quantities of the virulence of the disease and of the resistance of the individual. But he can be reassured of his chances on the basis of the majority who do recover. Nine will get well. No one can pick the tenth at the beginning. Tuberculosis must be taken seriously, but the patient is not to be frightened.

Fourth: "How long before I will be well?"

Nobody can tell how long for the same reasons as above. Do not lead him to think that he will recover in six to eight weeks. Many accidental developments can appear to change the course, such as pleurisy with effusion, tuberculous kidney, hemorrhage, meningitis, or spontaneous pneumothorax. But the occurrence of such things mean a prolongation of cure, rather than failure, and the patient has a right to know that.

The reading of the papers was followed by an interesting discussion led by Doctors Barnes, Barbour, Henson, Sutton, and McGurk.

On motion of Dr. D. R. Powell, seconded and carried, the visiting speakers were honored with a rising vote of thanks.

Those present in addition to the speakers were: Doctors Garbour, Barnes, Blackmun, Blinn, Broadus, Buchanan, Chapman, Doughty, Dozier, Friedberger, Gallegos, Goodman, Hanson, Kaplan, Latta, McGurk, Marnell, O'Donnell, Owens, B. J. Powell, D. R. Powell, Sanderson, Sippy, Smither, M. H. Smythe, Thompson, Tretheway, Van Meter, Vischi, Walker, Sutton, and Vanderleek.

C. A. BROADUS, *Secretary*.

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SANTA BARBARA COUNTY

The regular meeting of the Santa Barbara County Medical Society was held on Monday night September 8, at the St. Francis Hospital, with President Freidell in the chair.

The minutes of the previous meeting were read and approved.

Doctor Engelbach then introduced Dr. R. B. H. Gradwohl of the Gradwohl Institute of St. Louis, who gave a most interesting and instructive lecture on the "Schilling Blood Methods." This was discussed by Doctors Ullmann, Koefod, and Stevens.

Dr. Howard S. Duff of Santa Barbara then gave a talk on "Pyorrhea in Its Relation to Systemic Diseases," which was extremely interesting and informative.

The society then went into executive session and a report from the California Medical Association regarding delinquency was read and ordered filed.

Mr. Anderson of the *Morning Press* addressed the society regarding the publishing of syndicated articles. The secretary read a letter from Doctor Pope, secretary of the California Medical Association, on this subject, and after discussion by various members it was moved by Doctor Lewis and seconded by Doctor Sansum that the whole matter be referred to the board of censors, with power to act.

WILLIAM H. EATON, *Secretary*.

CHANGES IN MEMBERSHIP

New Members

Alameda County—Leonard Barnard, James V. Campbell, Loris Maud Lamb, Robert S. Leet, Noble H. Logan, Carlton H. Rice, Kenneth Joseph Thompson.
San Bernardino County—Leslie Elmo Elliott.
San Diego County—Thomas Johnson Rankin, Frederick Jerome Walter, Eugene Wolcott Whitney.
San Mateo County—Kirk Hubbard Prindle.

Transferred

Harry H. Jacob, from San Francisco to Orange County.
John L. Montgomery, from Los Angeles to San Francisco County.
Fred T. Foard, from San Joaquin to Santa Barbara County.

Resignations

William E. Hopkins, from San Francisco County.
David E. Stafford, from San Francisco County.
Mary H. Loveless, from San Francisco County.

Deaths

Blake, William Ford. Died at Palo Alto, August 28, 1930, age 56 years. Graduate of Cooper Medical College, San Francisco, 1903. Licensed in California, 1903. Doctor Blake was a member of the San Francisco County Medical Society, the California Medical Association, and a Fellow of the American Medical Association.
Ogden, George Weston. Died at Sacramento, September 3, 1930, age 59 years. Graduate of the University of California Medical School, San Francisco, 1892. Licensed in California, 1893. Doctor Ogden was a member of the Napa County Medical Society, the California Medical Association, and the American Medical Association.
Whittington, William L. Died at Sacramento, August 31, 1930, age 66 years. Graduate of Jefferson Medical College of Philadelphia, 1888. Licensed in California, 1912. Doctor Whittington was a member of the Placer County Medical Society, the California Medical Association, and a Fellow of the American Medical Association.

THE WOMAN'S AUXILIARY OF THE
CALIFORNIA MEDICAL
ASSOCIATION*
ORANGE COUNTY

The regular meeting of the Woman's Auxiliary of the Orange County Medical Association was held at the home of Mrs. E. D. Kilbourne in Santa Ana, with Mrs. F. E. Coulter in the chair.
The meeting was unusually interesting, as both Mrs. James F. Percy, state president, and Dr. William Duffield were guest speakers. Mrs. Percy stressed especially the value of self-education in health work, and outlined what an auxiliary could accomplish in that field. She announced that she had chosen our president, Mrs. F. E. Coulter, chairman of the State Program Committee, adding that Orange County had the distinction of filling two state offices, as Mrs. Dexter R. Ball is state secretary-treasurer.
Doctor Duffield spoke on the subject of "The Doctor's Wife," saying in part that, as a doctor's wife was usually a progressive clubwoman, she should devote time to cultural, social, and civic questions, and so keep in touch with those problems to which her husband was too busy to devote his time. He said that a medical auxiliary composed of such women could accomplish a tremendous amount of good in furthering the enactment of the proper health laws.
After a pleasant social hour the meeting adjourned to come together again on the first Tuesday afternoon in October.

JESSIE QUISNO RAITT,
Secretary-Treasurer.

* As county auxiliaries to the Woman's Auxiliary of the California Medical Association are formed, the names of officers should be forwarded to the state secretary-treasurer, Mrs. Dexter R. Ball, 2419 Bonnie Brae Street, Santa Ana, and to the California Medical Association office, Room 2004, 450 Sutter Street, San Francisco. Brief reports of county auxiliary meetings will be welcomed for publication in this column.

EXTENSION LECTURE PROGRAM*

1. INDEX TO SUBJECTS

- Anesthesiology**
Leake, Chauncey
- Dermatology and Syphilology**
Alderson, Harry E. Soiland, Albert
Hollingsworth, M. W. Templeton, H. J.
Lunsford, C. J. Way, Stuart C.
- Eye, Ear, Nose, and Throat**
Barkan, Hans
- General Medicine**
Barrow, John V. Miller, Hyman
Buerger, Leo Piness, George
DuBray, Ernest S. Pulford, D. Schuyler
Hurwitz, Samuel H. Read, J. Marion
Kruse, Fred H. Rowe, Albert H.
Lisser, Hans Shepardson, H. Clare
- (a) **Cardiology**
Kilgore, Eugene S. Sampson, John J.
Langley, Robert W. Spiro, Harry
- (b) **History of Medicine**
Codellas, Pan S. Larkey, Sanford V.
Leake, Chauncey
- (c) **Tropical Medicine**
Reed, Alfred C.
- (d) **Tuberculosis**
Pierson, Philip H. Rosencrantz, Esther
Voorsanger, William C.
- General Surgery**
Bell, Leo P. Kilfoy, E. J.
Brooks, LeRoy Mentzer, Stanley H.
Gehrels, Ernst Shephard, John Hunt
Gilcreest, Edgar L. Soiland, Albert
Yoell, Rodney A.
- (a) **Brain and Spinal Cord Surgery**
Towne, E. B.
- (b) **Plastic Surgery**
Bames, H. O. Updegraff, H. L.
- Gynecology and Obstetrics**
Fluhmann, C. Frederic
- Orthopedics**
Gottlieb, A.
- Pathology**
Barrow, John V. Connor, C. L.
Buerger, Leo Kellogg, W. H.
- Pharmacology and Chemistry**
Leake, Chauncey
- Psychiatry**
Smith, Sydney K.
- Radiology**
Lawson, John D. Soiland, Albert
- Urology**
Buerger, Leo Kilfoy, E. J.
Cross, W. W. Redewill, Francis S.
Ferrier, Paul A. Stevens, William E.
Wesson, Miley B.

2. INDEX OF SPEAKERS

- Harry E. Alderson, M. D., and Stuart C. Way, M. D.,**
320 Medico-Dental Building, 490 Post Street,
San Francisco.
1. The Determination of Malignancy in Tumors of the Skin. (Lantern slides.)
2. Dermatoses Commonly Seen in General Practice. (Lantern slides and motion pictures.)
3. A Skin and Syphilis Clinic Will Be Held of Locally Selected Cases (five or six).
- H. O. Bames, M. D.,** 512 Pacific National Building,
Los Angeles.
1. Esthetic Plastic Surgery of the Face. (Lantern slides.)
2. Esthetic Plastic Surgery of the Breast. (Lantern slides.)

* Additional names of speakers and topics received too late for inclusion in this issue of California and Western Medicine will be added to the published Extension Lecture Program reprints.

Hans Bärkan, M. D., 921 Medico-Dental Building, 490 Post Street, San Francisco.

1. Headaches Due to Ocular Causes.
2. Industrial Aspects of Eye Injuries.
3. Modern Methods of Cataract Operations.

John V. Barrow, M. D., 1110 Wilshire Medical Building, 1930 Wilshire Boulevard, Los Angeles.

1. Gastric Duodenal Manifestations from a Chronic Appendix.
2. Clinical Manifestations of Protozoa. (Motion pictures.)
3. The Business of Medicine.

Leo P. Bell, M. D., Woodland Clinic, Woodland.

1. Carcinoma of the Large Bowel.
2. Surgical Diseases of the Spleen.
3. Surgical Diseases of the Stomach and Duodenum.

LeRoy Brooks, M. D., 731 Medico-Dental Building, 490 Post Street, San Francisco.

1. Ptosis of the Cecum and Ascending Colon—A Congenital Deformity Often Misdiagnosed as Chronic Appendicitis.
2. Practical Preoperative Preparation and Postoperative Treatment in the Light of Recent Advances in Biochemistry.
3. Some Important Differences of Surgery in Infancy and Childhood as Compared with Surgery of Adults.

Leo Buerger, M. D., 1003 Wilshire Medical Building, 1930 Wilshire Boulevard, Los Angeles.

1. Bladder Tumors.
2. Hypertrophy (Adenoma) of the Prostate and Prostatectomy.
3. Circulatory Disturbances of the Extremities—Pathology and Clinical Aspects.

Pan S. Codellas, M. D., Schroth Building, 240 Stockton Street, San Francisco.

1. Ancient Greek Priests, Physicians, and the Origin of Hippocratic Medicine.
2. The Contributions of Ancient Greek Philosophers to Medicine.
3. The Story of the Doctor's Oath.

C. L. Connor, M. D., University of California Medical School, Parnassus and Third Avenues, San Francisco.

1. The Relation of Pathology to the General Practice of Medicine.
2. The Cancer Problem.

W. W. Cross, M. D., Franklin Building, 1624 Franklin Street, Oakland.

1. Bacterial Nephritis. (Lantern slides.)

Ernest S. duBray, M. D., 510 Medico-Dental Building, 490 Post Street, San Francisco.

1. Surrounding Factors in the Prognosis of Arterial Hypertension.
2. Diabetes Mellitus and Its Management.
3. Insulin an Empiric Adjunct in Fattening Severely Undernourished Patients.

Paul A. Ferrier, M. D., Professional Building, 65 North Madison Avenue, Pasadena.

1. Tumors of the Urinary Tract.
2. Tuberculosis of the Urinary Tract.
3. Points of Contact Between Urology and General Practice.

C. Frederic Fluhmann, M. D., Stanford University Hospital, San Francisco.

1. Carcinoma of the Uterus.
2. Functional Uterine Hemorrhage.
3. Female Sex Hormones.
4. Fibromyoma Uteri.

Ernst Gehrels, M. D., 734 Medico-Dental Building, 490 Post Street, San Francisco.

1. The Surgical Management of Gastric and Duodenal Ulcer.
2. The Choice of Procedure in Resection of the Large Intestine.
3. Cancer of the Rectum.

Edgar L. Gilcreest, M. D., 315 Fitzhugh Building, 384 Post Street, San Francisco.

1. Complete and Partial Rupture of Muscles.
2. Aneurysm and Its Surgical Treatment.
3. A Historical Review of Cultism.

A. Gottlieb, M. D., 1240 Roosevelt Building, 727 West Seventh Street, Los Angeles.

1. Orthopedic Treatment of Poliomyelitic Paralysis.
2. Cosmetic Orthopedics of the Foot and Lower Extremity.
3. The Painful Foot.

Merrill W. Hollingsworth, M. D., 409 First National Bank Building, Santa Ana.

1. A Historical Sketch of Syphilis.
2. Office Management of the Syphilitic Patient.

Samuel H. Hurwitz, M. D., 1214 Medico-Dental Building, 490 Post Street, San Francisco.

1. The Present Status of the Asthma Problem.
2. The Nose and Throat Aspects of Asthma and Hay Fever.
3. A Clinical Demonstration of Different Types of Asthma. (Patients may be brought by members of the society.)

W. H. Kellogg, M. D., State Hygienic Laboratory, Berkeley.

1. Concerning Anaphylaxis.
2. Diphtheria Is Preventable but Not Prevented. Why?
3. The "Plague" Diseases in Modern Times.

E. J. Kilfoy, M. D., 709 Medical Office Building, 1136 West Sixth Street, Los Angeles.

1. Diagnosis and Treatment of Teratoma of the Testicle.
2. Carcinoma of the Liver in Childhood.
3. Malignant Adenoma of the Colon and Treatment.

Eugene S. Kilgore, M. D., 724 Medico-Dental Building, 490 Post Street, San Francisco.

1. Clinical Significance of Precordial Pain.
2. The Practical Assessment of Cardiac Condition.

Fred H. Kruse, M. D., 916 Fitzhugh Building, 384 Post Street, San Francisco.

1. Peptic Ulcer—Cause and Treatment.
2. Acute and Chronic Yellow Liver Atrophy.
3. Colitis and Functional Colonic Disorders.

Robert William Langley, M. D., 312 Professional Building, 1052 West Sixth Street, Los Angeles.

1. Coronary Artery Disease. (Lantern slides.)
2. Cardiac Pain.
3. X-Ray Study of the Heart.

Sanford V. Larkey, M. D., University of California Medical School, Parnassus and Third Avenues, San Francisco.

1. The Relation of Greek Medicine to Modern Medicine.
2. The Early Anatomists and Vesalius.
3. Experimental Physiology—Harvey, Malpighi, Mayow, Spallanzani, Claude Bernard.
4. The Influence of Surgery on Scientific Medicine.

John D. Lawson, M. D., Woodland Clinic, Woodland.

1. Cholecystography and Its Diagnostic Value.
2. Radiographic Evidence of Sinus Disease.
3. Roentgen Therapy in Leukemia.

Chauncey D. Leake, Ph. D., University of California Medical School, Parnassus and Third Avenues, San Francisco.

1. The Drug Racket.
2. Recent Advances in Pharmacology.
3. Recent Advances in Chemotherapy.
4. Preanesthetic Medication.
5. The Historical Development of Surgical Anesthesia.
6. The Chemotherapy of Amebiasis.
7. The Historical Development of Medical Ethics.

Hans Lisser, M. D., 240 Fitzhugh Building, 384 Post Street, San Francisco.

1. Recent Endocrinology. (Lantern slides.)
2. The Pituitary Disease, Acromegaly, and Its Effect on Other Ductless Glands. (Lantern slides.)
3. Goiter and Myxedema. (Lantern slides.)

Stanley H. Mentzer, M. D., 1009 Four Fifty Sutter Street, San Francisco.

1. Treatment of Acute Cholecystitis.
2. Cholecystectomy—Modifications in Technique.
3. Etiology of Cholesterosis of the Gall Bladder.

Philip H. Pierson, M. D., 1228 Medico-Dental Building, 490 Post Street, San Francisco.

1. The Present Status of the Treatment of Pulmonary Tuberculosis, Including the Indications for Surgery.
2. The Use of Tuberculin in the Diagnosis and Treatment of Extrapulmonary, as well as Pulmonary Tuberculosis.
3. Pulmonary Abscess and Bronchiectasis. Remarks on the Etiology, Diagnosis, and Treatment of Pulmonary Infections, Including Acute and Chronic Diseases.

George Piness, M. D., and Hyman Miller, M. D., 608 Medical Office Building, 1136 West Sixth Street, Los Angeles.

1. Allergy and the General Practitioner.
2. Respiratory Allergy.
3. Skin Allergy.
4. Abdominal Allergy.

D. Schuyler Pulford, M. D., Woodland Clinic, Woodland.

1. The Ketogenic Diet Treatment of Epilepsy.
2. Diseases of the Thyroid.
3. Fresh Tissue Pathology and the Grading of Neoplasms.

J. Marion Read, M. D., 1530 Medico-Dental Building, 490 Post Street, San Francisco.

1. Some Physiologic Aspects of Blood Pressure.
2. A Summary of Our Present Knowledge of Thyroid Disease.

Francis H. Redewill, M. D., 522 Flood Building, 870 Market Street, San Francisco.

1. Modern Treatment of Gonorrhea. Discussion of latest electrotherapeutic method.
2. Tertiary Syphilis—A Modern Treatment Hastening the Obtaining of a Negative Wassermann in Arsenic-Fast Cases.
3. The Colon as Site of Focal Infection in Chronic Genito-Urinary Diseases.

Alfred C. Reed, M. D., Union Square Building, 350 Post Street, San Francisco.

1. Amebic Infection.
2. Cairo, Baghdad, and the Orient Medically. (Lantern slides.)
3. Tropical Medicine in California Practice.

Esther Rosencrantz, M. D., San Francisco Hospital, San Francisco.

1. The Rollier Treatment in Surgical Tuberculosis. (Lantern slides.)

Albert H. Rowe, M. D., 242 Moss Avenue, Oakland.

1. Food Allergy.
2. Allergy in the Etiology of Disease.
3. Diabetes Mellitus—Its Method of Control.

John J. Sampson, M. D., 1530 Medico-Dental Building, 490 Post Street, San Francisco.

1. Values and Limitations of Technical Diagnostic Cardiac Methods.
2. Relation of Heart Disease to the Financial Status of a Community.
3. The Use of Barium and Other Inorganic Salts in the Treatment of Heart Disease.

John Hunt Shephard, M. D., Medico-Dental Building, San Jose.

1. Lesions of the Esophagus.
2. Epithelioma of the Lip.
3. Thyrotoxicosis.

H. Clare Shepardson, M. D., 204 Fitzhugh Building, 384 Post Street, San Francisco.

1. Treatment of Diabetic Coma. (Lantern slides.)
2. Diabetic Surgery from a Medical Viewpoint.
3. Arteriosclerosis in the Young Diabetic.

Sydney Kinnear Smith, M. D., 230 Grand Avenue, Oakland.

1. Psychiatry—What It Is.
2. The General Practitioner and Psychiatry.
3. Modern Trends in Mental Medicine.

Albert Soiland, M. D., 1407 South Hope Street, Los Angeles.

1. Observations of Uterine Cancer Treated by Radiation and Results During the Past Fifteen Years.
2. Radium and Roentgen Therapy of Uterine Fibromyomata.
3. Electrocoagulation and Radiation in the Treatment of Skin Malignancies.

Harry Spiro, M. D., 501 Flood Building, 870 Market Street, San Francisco.

1. Angina Pectoris.
2. Cardiac Irregularities—Diagnosis and Treatment.

William E. Stevens, M. D., 602 Flood Building, 870 Market Street, San Francisco.

1. Urology in Women.
2. Medical and Surgical Conditions of the Urinary Tract During Infancy and Childhood.
3. Differential Diagnosis of Pathological Conditions of the Urinary Tract and Adjacent Organs.

H. J. Templeton, M. D., and C. J. Lunsford, M. D., 3115 Webster Street, Oakland.

1. Cutaneous Malignancies—Their Treatment, Especially by Electrothermic Methods. (Moving pictures and demonstrations of modalities used.)
2. Ringworm of the Feet. (Lantern slides.)
3. Cutaneous Manifestations of Syphilis. (Lantern slides.)

E. B. Towne, M. D., 612 Union Square Building, 350 Post Street, San Francisco.

1. Roentgen Ray in Diagnosis and Localization of Tumors of the Brain and Spinal Cord. (Lantern slides.)
2. Treatment of Injuries of the Brain and Spinal Cord. (Lantern slides.)
3. Surgery of the Peripheral and Cranial Nerves. (Lantern slides.)

H. L. Updegraff, M. D., 6777 Hollywood Boulevard, Hollywood.

1. Methods in Reconstructive Surgery.

William C. Voorsanger, M. D., 1001 Medico-Dental Building, 490 Post Street, San Francisco.

1. Results of Vaccine Therapy in Treatment of Infectious Bronchitis and Asthma.
2. Modern Treatment of Pulmonary Tuberculosis.
3. Pulmonary Conditions Wrongly Diagnosed as Tuberculosis.

Miley B. Wesson, M. D., 939 Medico-Dental Building, 490 Post Street, San Francisco.

1. Diseases of the Bladder—Differential Diagnosis and Treatment. (Lantern slides.)
2. Confusing Pyelograms. (Lantern slides.)
3. Diseases of the Prostate—Differential Diagnosis and Treatment. (Lantern slides.)

Rodney A. Yoell, M. D., 317 Physicians Building, 516 Sutter Street, San Francisco.

1. The Newer Physiology of the Biliary Tract in Relation to Surgery. (Lantern slides.)
2. Atypical Distribution of Gall-Bladder Pain. (Lantern slides.)
3. Clinical Concepts of Bile Salt Retention. (Lantern slides.)

NEVADA STATE MEDICAL
ASSOCIATION

W. A. SHAW.....	President
R. P. ROANTREE, Elko.....	President-Elect
H. W. SAWYER, Fallon.....	First Vice-President
E. E. HAMER, Carson City.....	Second Vice-President
HORACE J. BROWN.....	Secretary-Treasurer
R. P. ROANTREE, D. A. TURNER, S. K. MORRISON.....	Trustees

COMPONENT COUNTY SOCIETIES
WASHOE COUNTY

The Washoe County Medical Society met in the Nevada State Building on Tuesday evening, September 9, with Doctor Hamer of Carson presiding. After the usual routine of business had been completed, Dr. Benjamin Jablons of New York City was introduced, and delivered a most excellent paper on the subject of "Diabetes Mellitus." The following is an abstract of the paper:

The mortality statistics for the fifth registration area of the United States show diabetes to be fifth in causation of deaths. Statistics indicate that diabetes is causing from two to two and one-half million deaths annually in the United States.

Joslin and others who have studied the hereditary factors of diabetes assert that 20 per cent of the children of diabetics are likely to develop the disease and 12 to 15 per cent of those in whose families diabetes occurs other than from immediate relatives. The seeming predilection for certain race groups is dependent on the tendency to overindulgence in fats and carbohydrates.

Doctor Jablons discussed the pathologic physiology of diabetes, composition and chemical formula of insulin and its reaction to various deleterious agencies such as change of acidity and alkalinity.

The more important functions of insulin, including its effects on blood, sugar content, its effect on glucose metabolism, the neutralization of acid poisoning, the storing of glycogen in liver and muscles, the part it plays in the production of energy, in producing an alkaline reserve in the blood, in forming fat and increasing its effect on adrenal, pituitary, thyroid and ovarian secretions were brought out.

The result of toxic doses in producing edema of the brain and convulsions, and the overstimulation of the adrenal gland with consequent exhaustion was shown.

Treatment of diabetes was discussed with special reference to the kidney threshold, differentiating from renal diabetes hyperglycemia and glucosemia, and true diabetes mellitus. The various factors which produce hyperglycemia and the manner in which these differ from the true diabetes mellitus. The necessity of reducing doses of insulin in old people or in people in whom the liver glycogen has been exhausted through excessive activity of the body or thyroid poisoning. The methods of regulating diets to include necessary vitamins and balanced amounts of carbohydrates, fats, and proteins. Prophylactic treatment of hereditary diabetes and prevention of changes in the blood vessels as a result of overstimulation of the adrenal gland, and injudicious consumption of fat. Glucose tolerance tests, dietetic treatment, its importance in regulating diabetes and in determining requisite amount of insulin. Use of alkaline-forming foods to prevent acid poisoning. Essential minerals to be supplied, value and rôle in metabolism. The value of insulin substitutes given by mouth, and manner of function and danger associated with their use. Oral administration of insulin and difficulties connected with it were elaborated by the essayist.

The paper was comprehensive and scholarly. The discussion by members developed many practical points.

Following the paper, Dr. J. L. Robinson spoke of the committee work on the proposed Community Hospital, and said that enough names had already been secured to place the proposition on the ballot at the coming general election.

There were a number of visitors present, including a fair representation of university people.

Four applications for membership were presented. Meeting adjourned.

THOMAS W. BATH, *Secretary.*

UTAH STATE MEDICAL
ASSOCIATION

H. P. KIRTLEY, Salt Lake City.....	President
WILLIAM L. RICH, Salt Lake City.....	President-Elect
M. M. CRITCHLOW, Salt Lake City.....	Secretary
J. U. GIESY, 701 Medical Arts Building, Salt Lake City.....	Associate Editor for Utah

OFFICIAL NOTICE

Full reports of the state association meeting at Salt Lake City will appear in the next issue of CALIFORNIA AND WESTERN MEDICINE.

COMPONENT COUNTY SOCIETIES
OBITUARIES

C. E. Dorlan, M. D.
1880-1930

Dr. C. E. Dorlan of Devil's Slide, Utah, died August, 1930. Doctor Dorlan was a graduate of the Northwestern University of Chicago, Illinois, receiving his degree from that institution in 1907.

Immediately after graduation he came to Utah and located at Devil's Slide. As surgeon for the Portland Cement Company of Utah and as a general practitioner, he has been engaged in the following of his profession in that locality ever since.

His son is now a student at Northwestern.

He is survived by his mother, a sister, his widow, and son.

Mark Brown, M. D.
1884-1930

Dr. Mark Brown, 46, of 853 Twenty-fourth Street, prominent Ogden physician and noted x-ray specialist, died of septicemia, following a gall-bladder operation.

Doctor Brown was born in Ogden, April 17, 1884, the son of Mr. and Mrs. Richard T. Brown. He studied medicine at the University of Utah, graduating with his M.D. degree from Columbia University, New York, in 1912. After taking postgraduate and intern work in New York, he returned to Ogden, where he has been prominently connected with the medical profession.

In 1921 Doctor Brown specialized in x-ray work, gaining a reputation in this field throughout the intermountain territory.

Doctor Brown was married in 1917 to Miss Mary Wattis, who survives him. Other survivors are his mother, Mrs. W. J. Smith; a sister, Miss Minnie Moore Brown, and four children, Mary Patricia, 12; Helen Hope, 10; William Richard, 8, and Jane Brown, 4, all of Ogden.

Doctor Brown was the grandson of Dr. Jesse James Murphy, early Utah physician, who came to Salt Lake in 1869 from Georgia.

MISCELLANY

Items for the News column must be furnished by the twentieth of the preceding month. Under this department are grouped: News; Medical Economics; Correspondence; Department of Public Health; California Board of Medical Examiners; and Twenty-five Years Ago. For Book Reviews, see index on the front cover, under Miscellany.

NEWS

Visiting Appointment to Union Medical College, Peiping.—Dr. Emile Holman, professor of surgery in the Stanford University School of Medicine, San Francisco, has been granted leave of absence during the autumn quarter to serve as visiting professor of surgery in Peiping Union Medical College, Peiping, China. During August, Doctor Holman will visit Japan and give lectures and clinics at the Severance Union Medical College, Seoul, Korea.

The Western Journal of Surgery and Surgical Specialties.—The editorial board takes pleasure in announcing the early publication of *The Western Journal of Surgery* to replace *The Medical Sentinel* in the interest of the regional problems in the fields of surgery in all its branches—gynecology, obstetrics, and all matters pertaining thereto. This move is in response to an enthusiastic demand, and is the result of years of careful observation of regional conditions. The journal will be devoted to the interests of the individual physician in the promulgation of scientific learning and mutual confidence.

Subscribers to *The Medical Sentinel* will receive the *Western Journal of Surgery* beginning with its first issue.

Service Bureau.—Mr. Allen J. McCarthy, formerly business manager and chief of administrative service in several U. S. Army, U. S. Public Health Service, and U. S. Veterans' Bureau hospitals in various parts of the country for the past twelve years and late superintendent of the Alameda Sanatorium, Alameda, has recently opened offices in the Wakefield Building, Oakland, under the title of "The Allen Hospital Bureau." This bureau furnishes professional, technical and administrative personnel to hospitals, clinics, physicians, and dentists, together with a consulting service in hospital administration.

MUCH IN LITTLE *

Poor results make poor collections.

Losses of inexperienced operators in the stock market are more easily recouped than the losses of inexperienced operators in the abdomen.

The breaking up of adhesions in a stiff joint, under a general anesthetic, is a good guarantee of some permanent disability.

Hemorrhoids are often the price one pays for his ignorance of the art of defecation. Alternate pressure and relaxation allows proper anal dilatation.

* Members of the California, Nevada, and Utah Medical Associations are invited to contribute to this column of aphorisms, which will appear from time to time in California and Western Medicine, as sufficient copy accumulates.

The aphorisms in the September and October issues were contributed by John Hunt Shephard, M. D., San José.

DEPARTMENT OF PUBLIC HEALTH

By W. M. DICKIE, Director

Epidemic Poliomyelitis Less Prevalent.—The epidemic of acute anterior poliomyelitis which has prevailed during the present summer is now subsiding rapidly. Since the middle of July, when the disease reached peak in its prevalence, the number of cases reported has decreased by 47 per cent. There were but fifty-two cases reported during the week ending August 16. Since the beginning of the year a total of 880 cases of the disease have occurred in California. Of these, 785 were reported from the eight counties of southern California. The remaining ninety-five cases were reported from twenty-two other counties of the state. No cases of poliomyelitis have been reported this year from twenty-eight counties of California. Any further rise in the prevalence of the disease this year is unlooked for, and it now appears that the number of reported cases will continue to diminish each week.

Information relative to the number of deaths that may have occurred and the number of cases in which there are resultant paralyses is not available at the present time. It would appear, however, that relatively few deaths have occurred and relatively few cases of paralysis have been left in the wake of the epidemic.

Population and Death Rates.—The remarkable increase in the population of California as revealed in figures released by the United States Bureau of the Census is an important factor in lowering the death rates for the various causes of death. Standard mortality rates are based upon the numbers of deaths that occur in every 100,000 of the population. Estimates of population at mid-year are based upon the rate of increase during the ten years that intervene between the 1920 and 1930 census. Since the state grew from 3,426,000 in 1920 to 5,672,000 in 1930, the estimates of population during the intervening years are made much higher. Instead of having a typhoid fever death rate of 2.3 per 100,000 population, as under the old estimate of population, at mid-year, the typhoid fever death rate for 1929 was 1.7 per 100,000 population, as based upon the computed increase. With tuberculosis, instead of a mortality rate of 139 per 100,000 population, the new computations give the state a rate of 106.3 per 100,000 population for this disease. Similar figures give California added prestige in the accomplishments that have been made in the control of the various communicable diseases. The new mortality rates as based on the new estimates of population, now available, place California in the van as one of the most healthful states in the Union.

Condemnation of Off-Grade Walnut Meats.—During the season 1929-1930, a total of 1,594,263 pounds of off-grade walnut meats were condemned by the Bureau of Food and Drugs. These products were sent to oil mills, where they were converted into edible oil products. Inspectors of the Bureau of Food

and Drugs visited nut-cracking establishments, wholesale candy factories and wholesale bakeries, as well as cold-storage plants. The off-grade products, which consist of walnut meats that were mouldy, rancid, or infested with worms, were placed in sacks and quarantined. The removal of these faulty products from the market and their conversion into products suitable for human consumption is of benefit to the consuming public. The United States Department of Agriculture and the State Department of Agriculture coöperated with the State Department of Public Health in making this survey.

Examination of Entering School Children.—The annual summer round-up of children who will enter school for the first time was completed during the summer months. Nearly eight thousand children were given physical examinations under the auspices of the Bureau of Child Hygiene of the State Department of Public Health and the California Congress of Parents and Teachers. These examinations were made in thirty-eight counties of the state. Recommendations were made for the correction of physical defects that were discovered by the examining physicians. The removal of such defects is of vital importance, not only to the health and education of the individual children, but it is also of value in the conservation of school moneys, for school appropriations are based upon average daily attendance.

Beginnings of Vital Statistics in California Counties. During recent years there has been a larger demand for copies of birth certificates for events of births which occurred prior to July 1905, when the State Vital Statistics Act went into effect. The increase in travel to European countries has provided a stimulus which has resulted in many requests for certificates of births which occurred prior to state registration. Applicants for such certificates must, of necessity, be referred to the recorders of the counties in which they may have been born. In various counties the State Department of Public Health has gathered information pertaining to registration from each of the county recorders of the state. It has been found that marriage records have been kept most faithfully from the earliest times. Deaths have been registered in rather desultory fashion and records of births in many counties are totally incomplete. It is interesting to note that registration of marriages began in Sonoma County in 1846, four years before the state government was organized. These marriage records were made under the old Bear Flag government, which flourished in Sonoma County in the early days. Many of the counties have marriage records which date back to the early fifties. This pertains especially to the mountain counties in the old mining districts and to other counties which were organized early in the history of California.

No birth or marriage records for San Francisco are available for the period prior to April 18, 1906, as all these records were destroyed in the San Francisco conflagration of that date. A few of the San Francisco death certificates were saved from the fire, most of these being dated in the early sixties and seventies.

Marriage Decline in 1930.—The total number of marriages performed in California during the first six months of the present year is seventy-four short of the total number performed during the first six months of 1929. The total for the first half of the year 1929 was 24,076 and for the corresponding period of 1930 it was 24,002.

TWENTY-FIVE YEARS AGO *

EXCERPTS FROM OUR STATE MEDICAL JOURNAL

Vol. III, No. 10, October 1905

From some editorial notes:

McCormack on Organization.—During the present month of October, Dr. J. N. McCormack of Bowling Green, Kentucky, is to visit California and address the physicians of our state on the subject of organization and what it means to the community and to the physician. . . .

. . . Now it remains for us to take the next step—to perfect that organization and to make it more and more useful, not alone to the profession itself, but to the laymen whom we serve. It is largely to help us take this step that Doctor McCormack is coming to visit us. . . .

New Orleans Death Rate.—The *New Orleans Medical and Surgical Journal* for September presents some very interesting figures on the relative number of cases and deaths from yellow fever during the present and previous epidemics. . . .

Use the Office.—The secretary desires to call the attention of members to the fact that the office of the society, in the Y. M. C. A. building, San Francisco, could possibly be of service more often than it is, if they would but use it as a sort of "clearing house." For instance, it very frequently happens that nurses desiring hospital appointments, or general work, apply to the secretary; we also have noted two or three stenographers who are perfectly competent to take medical dictation. Physicians desiring to go away for a time and who have no one at hand to take care of their work, could often be placed in communication with men who would be glad of the change and who would like the opportunity of thus substituting for the absentee. . . .

"Patent" and Secret Proprietary Medicines.—The CALIFORNIA STATE JOURNAL OF MEDICINE wishes to congratulate the *Journal of the American Medical Association* on this frank expression regarding certain undesirable advertisements which appear in its pages; this attitude disarms criticism. It is only to be regretted that such a statement as this was not made a year ago, in which case we would have been spared the necessity of making unpleasantly critical remarks. We are particularly glad to note the public announcement that the objectionable advertisements will be dropped from the journal's pages as the contracts expire. . . .

From the "President's Address at the Third Annual Meeting of the Pacific Association of Railway Surgeons" by N. H. Morrison, M. D., Los Angeles.

. . . There are two or three important points to which I desire to call your attention. One is "Drinking Water." All water at division points, where men are working, should be carefully examined by a bacteriologist, and if found impregnated with germs should be sterilized before using for drinking purposes. . . .

From an article on "Early Operation of Gall-Stone Disease" by Emmet Rixford, M. D., San Francisco.

The surgical treatment of gall-stone disease is a subject so extensive and one whose literature is so vast that it is a sheer impossibility to make an adequate presentation of it in a single paper. . . .

* This column strives to mirror the work and aims of colleagues who bore the brunt of state society work some twenty-five years ago. It is hoped that such presentation will be of interest to both old and recent members.

From an article on "The Surgical Treatment of Pancreatic Complications in Gall-Stone Disease" by Andrew Stewart Lobingier, M. D., Los Angeles.

As early as 1892 Mr. Mayo Robson had observed the frequency with which gall stones in the choledochus were associated with enlargement of the head of the pancreas. . . .

From an article on "A More Simple Technic in Herniotomy" by O. O. Witherbee, M. D., Los Angeles.

The radical cure of inguinal hernia has been the subject of perhaps as many essays as that of any procedure in the entire category of surgery. The reason is not that success has failed to attend the efforts of the modern surgeon in his endeavor to effect a cure, nor is it the result of variable complications arising in individual cases. . . .

From an article on "The Hopes, Disappointments and Successes of the State Board of Health" by N. K. Foster, M. D., Sacramento, Secretary.

The State Board of Health of California was organized in the early seventies, and was the third in the United States. Since then the basic idea of the necessity for such a board has materially changed in conformity with the progress of sanitary science. The idea at that time was that the board should be advisory, and it was given certain duties, but no powers. . . .

From an article on "Chronic Suppuration of the Middle Ear in Relation to the Whole Number of Ear Affections, with Special Reference to the Operative Cases" by Cullen F. Welty, M. D., San Francisco.

Chronic suppuration of the middle ear is so important that I wish,

First, to establish the proportion that exists between this affection and the whole number of ear affections. . . .

From an article on "The Misuse of Atropine in Eye Diseases" by Louis C. Deane, M. D., San Francisco.

The last score of years has seen the advent of a number of new mydriatics, yet with all, the part which atropine plays in the realm of eye diseases has hardly, if ever, been attacked. . . .

From medical society reports:

Alameda County Society.—The Alameda County Society held its regular monthly meeting on August 21. No scientific papers were read, but the evening was spent in a discussion of plans for the purchase or construction of a permanent home for the society, a building which will be adapted to all its needs, both scientific and social, and which will belong to the society itself. . . .

Solano County.—The physicians of Solano County, in the latter part of July, met and began preliminary work of organization. On August 31 another meeting was held and final organization of the Solano County Medical Society was effected. . . .

News item:

Marriage of Dr. H. E. Alderson.—Dr. H. E. Alderson, secretary of the San Francisco County Medical Society, married Miss Cordelia Church Bishop on the 26th of September at the First Congregational Church in Oakland.

CALIFORNIA BOARD OF MEDICAL EXAMINERS

By CHARLES B. PINKHAM, M. D.
Secretary of the Board

News Items, October 1930

RESULTS OF LOS ANGELES EXAMINATION
JULY 15 TO 17, 1930

PASSED		Year of Graduation	Per Cent
School			
Cornell	(1930)		85 8/9
Harvard	(1929)		84 3/9
Harvard	(1930)	87 7/9,	82 7/9
Northwestern	(1924)		77
Northwestern	(1929)	82 7/9,	80 1/9
Rush	(1929)		82 4/9
Rush	(1930)	84 5/9,	79 3/9,
		81,	79 8/9
Loyola	(1930)		81 5/9
College of Medical Evangelists.....	(1929)	78 5/9,	79 4/9
College of Medical Evangelists.....	(1930)	80 3/9,	80 8/9
	83 1/9,	83 4/9,	78 3/9,
	82 3/9,	77 1/9,	80 4/9,
	83 1/9,	86 1/9,	
	85 5/9,	86,	78 8/9,
	82 4/9,	85 3/9,	
	80 8/9,	86 3/9,	82 8/9,
	84 8/9,	80 7/9,	
	81 8/9,	79 3/9,	83 2/9,
	77 5/9,	81 1/9,	
	80 4/9,	80 6/9,	82 6/9
Stanford	(1930)	79 1/9,	85 5/9
Tufts	(1929)		84 8/9
University of California	(1930)	80 4/9,	86,
		79 3/9,	82 6/9
University of Glasgow	(1890)		75 1/9
University of Iowa	(1928)		87 6/9
University of Nebraska	(1930)		83 1/9
University of Oregon	(1929)	84 4/9,	76 3/9
FAILED			
Charles University of Prague.....	(1921)		73 5/9
College of Physicians & Surgeons, Boston	(1916)		71 3/9
Creighton	(1930)		71
College of Medical Evangelists.....	(1930)	70 2/9,	72 8/9
Fort Worth School of Medicine.....	(1910)		69 3/9
University of Cincinnati	(1930)		74 4/9
University of Illinois	(1930)		73 7/9
University of Nebraska	(1928)		70 5/9
University of Vienna	(1926)		76 4/9
University of Vienna	(1928)		73 6/9

RESULTS OF SAN FRANCISCO EXAMINATION
JULY 8 TO 10, 1930

PASSED		Year of Graduation	Per Cent
School			
Albertus University, Germany	(1926)		77 1/9
College of Medical Evangelists.....	(1929)		80 7/9
College of Medical Evangelists.....	(1930)	81 3/9,	85 2/9,
	81 9/10,	81 7/9,	82 4/9,
	79 5/9,	90 5/9,	
Creighton University	(1929)		76 1/9
Creighton University	(1930)	85 7/9,	86 7/9,
	76 2/9,	83 7/9,	78 4/9,
	88 5/9,		
Johns Hopkins	(1929)		76 5/9
Loyola University	(1930)		81 3/9
Marquette	(1930)		82 6/9
Northwestern University	(1929)		85 3/9
Northwestern University	(1930)	81 2/9,	82 4/9
		79 6/9	
Royal College of Physicians & Surgeons, England	(1930)		86 3/9
Rush Medical College	(1925)		81
Rush Medical College	(1930)	76 6/9,	88
		84 7/9,	84,
Stanford	(1930)	86 5/9,	83 3/9,
	85 4/9,	83 8/9,	76 4/9,
	79 5/9,	83 1/9,	
	78 1/9,	85 5/9,	81 6/9,
	80 4/9,	85 3/9,	
	86 8/9,	87,	86 8/9,
	85 2/9,	83 1/9,	
	75 1/9,	79 1/9,	84 1/9,
	89 4/9,	81 5/9,	
	80 7/9,	85 3/9,	81 7/9,
	87 7/9,	88 6/9,	
	86 1/9		
University of California.....	(1930)	77 8/9,	82 9/10
	87,	98 2/9,	83 3/9,
	82 6/9,	81 2/9,	
	81 3/9,	80,	85 3/9,
	80 7/9,	81 6/9,	
	82 6/9,	83 3/9,	78 1/9,
	82 4/9,	86 2/9,	
	84 4/9,	85,	83,
	84 3/9,	82 5/9,	81 3/9,
	81,	89,	82 2/9,
	86 1/9,	85 8/9,	88 4/9,
	80,	87,	87 8/9,
	83 7/9,	84,	87 5/9,
	85 1/9,	83,	78 6/9,
	83 2/9,	84 3/9,	
	81 3/9,	85 1/9	
University of Guadalajara, Mexico.....	(1923)		76 3/9
University of Illinois	(1924)		74 4/9
University of Illinois	(1926)		78 3/9
University of Illinois	(1930)		78 6/9
University of Louisville	(1929)		79
University of Minnesota	(1930)		79 3/9
University of Nebraska	(1929)		84 8/9
University of Nebraska	(1930)	82 1/9,	83 6/9
University of Oregon	(1929)	80 5/9,	77 7/9
University of Oregon.....	(1930)		87 6/9
University of Pennsylvania	(1929)		89 8/9
University of Toronto, Canada.....	(1903)		76
Washington University	(1929)		82 6/9
Washington University	(1930)		79 5/9

FAILED

College of Medical Evangelists.....(1930)	73 3/9
McGill University .....(1930)	74 6/10
Northwestern University .....(1930)	73 8/9
University of Guadalajara, Mexico.....(1921)	66 8/9
University of Minnesota .....(1930)	71
University of Oregon .....(1929)	73
University of Wurzburg, Germany.....(1898)	66 7/10
Washington University .....(1930)	73 5/10

Willows and Orland people with incurable diseases who have been on the way to "recovery" under the care of W. J. Conway, Chico Indian medicine man, will have to wait for a time for further treatments, as Conway was arrested last Friday by J. W. Davidson, special agent for the State Board of Medical Examiners, on a charge of practicing medicine without a license. Conway, whom Davidson claims has no medical education whatsoever, nor any other kind of education, has been the mecca of the sick of the valley for a number of months, his headquarters in the Indian village north of Chico being crowded daily with the lame, the halt, and the blind . . . (Willows *Journal*, September 9, 1930).

On August 12, 1930, following a two-day hearing, Superior Judge Robert B. Lambert of Los Angeles denied the petition of Dr. Maximilian Leopold Herzig for a writ of mandate to compel the California Board of Medical Examiners to issue him a physician's and surgeon's reciprocity license based on his Nevada credentials. Doctor Herzig will be recalled as one of the incorporators and president of the "United States National Medical University. . . College of Physicians and Surgeons," a paper corporation with headquarters said to have been located over a San Francisco grocery store and which was brought to an early demise through activities of the Board of Medical Examiners of this state. Doctor Herzig's 1920 and 1923 reciprocity applications, based on a Nevada certificate, were denied on the grounds of unsatisfactory evidence of medical training. His medical training was evidenced by the following:

1. A 1913 "ad eundem" degree from the National Medical University of Chicago which has been referred to as a "sundown" institution and which was formally disapproved by a vote of the Illinois medical licensing body, effective June 30, 1909.

2. A medical diploma from the St. Louis College of Physicians and Surgeons dated February 3, 1919. Verification of credentials of this school, so interwoven in the diploma mill scandal of 1922-24 as to cause the State of Missouri to revoke its charter, has been impossible. This school, following a 1924 report on its diploma mill activities, was disapproved as qualifying applicants for a license to practice in California.

In September 1929, Doctor Herzig filed his third reciprocity application based on a 1925 diploma from the Royal University of Naples, Italy (where he claimed attendance for one year), and a second Nevada license issued in 1925. His application was again denied, based on unsatisfactory evidence of medical education. He then filed his petition for a writ of mandate.

Investigation disclosed that the Royal University of Naples had given Doctor Herzig senior standing on his credentials from the National Medical University of Chicago and from the St. Louis College of Physicians and Surgeons, the Royal University of Naples relating that Doctor Herzig exhibited a medical diploma from the University of Lausanne; however, in no application filed by Doctor Herzig either in California or Nevada nor in any correspondence had with him did he make mention of any such diploma.

Dr. Samuel D. Cotterell, well known race physician, was, on Tuesday, July 29, sentenced to serve a short time in the county jail for giving and issuing a narcotic prescription to one Ansel Bartlett, a police "stool pigeon" . . . (Los Angeles *Pacific Defender*, August 7, 1930).

Dr. W. C. Hoyt, Gridley physician, was detained yesterday by Gridley police on an insanity complaint after allegedly threatening the life of Mrs. Hoyt and others. He was taken to the Butte County jail and will be held for investigation. Doctor Hoyt has been haled into the Gridley courts on several occasions. In July he was twice arrested in one day on charges of intoxication and disorderly conduct, and gained release from prosecution when relatives agreed to take him to a San Francisco sanitarium for treatment. He returned to Gridley several days ago (Oakland *Tribune*, August 9, 1930).

William D. Allen took charge of the federal narcotic office here yesterday, succeeding Harry V. Williamson, who has been transferred to Kansas City, Missouri (San Francisco *Examiner*, September 16, 1930).

According to reports, J. J. Brooks on August 27 pleaded guilty in the Justice Court of San Fernando Township to a violation of the medical practice act, and was sentenced to serve sixty days in the county jail, said sentence being suspended on condition of no further violation of the medical practice act.

Special Agent Davidson reported that on September 5, Ah Mow Chang of the Chang Hai Herb Company, Chico, was arrested on a charge of violation of the medical practice act.

On August 28, H. Lynn Staley pleaded guilty in the courts of Los Angeles to violation of the medical practice act, and was sentenced to thirty days in the city jail, sentence being suspended on condition that the defendant discontinue further violation.

The license of John R. Brinkley, "goat gland specialist," who attracted a large clientele in San Francisco a few years ago, has been revoked in Topeka, Kansas, according to an Associated Press dispatch received here yesterday. He was accused of gross immorality. Doctor Brinkley's gland operations here caused a sensation. Later, he was charged with operating a diploma "mill" (San Francisco *Examiner*, Thursday, September 18, 1930).

MEMBERSHIP AND ORGANIZATION

The population figures by counties as given below, and which are also referred to in an editorial in this issue, were secured by the editor from a bulletin of August 14, 1930, issued by the Bureau of the Census, Department of Commerce, Washington.

California has fifty-eight counties and in fifteen counties no county medical society exists, either as a separate entity or as a union society with one or more other counties. The editor has italicized such counties. When a county is represented in a conjoint county medical unit the names of the associated counties have been indicated in parenthesis.

The editor obtained the figures of total number of licentiates in each county, and the total number of members in county societies, from the 1930 directories of the Board of Medical Examiners of the State of California, and of the California Medical Association. In counties where no county societies exist, membership as shown means such resident physicians hold membership in some adjacent county medical society. The editor has also had his office calculate the approximate percentage increases or decreases in membership. These percentages for civil population and for California Medical Association membership should provide interesting facts for consideration by California Medical Association members and officers who are interested in efficient organization.

These county tabulations by population and by California Medical Association membership assume additional interest when a comparison is made with the lists of California senatorial and assembly dis-

tricts as printed in the September issue of CALIFORNIA AND WESTERN MEDICINE, page 694, and with the make-up of the House of Delegates of the California Medical Association, as printed in the April 1930 issue, page 269.

For further comparison, some figures from the *Journal of the American Medical Association* of May 1930, page 1577, are also appended and these show the

extent to which members of the California Medical Association are identified with the national organization, the American Medical Association, both as regards American Medical Association "membership" and as to American Medical Association "fellowship." The total number of *Journal of the American Medical Association* subscribers and the total number of physicians in California are also given.

Table Giving California Population and California Medical Association Membership Statistics

1.—As Regards Population					2.—As Regards California Medical Association				
County	1930	1920	Increase, 1920-1930* Number Per Cent		Licentiates in California	Memb. in 1921	Memb. in 1930	Incr. in Memb.	Decr. in Memb. Percentage Memb. Incr. or Decr.
State total	5,672,009	3,426,861	2,245,148	65.5					
By counties:									
Alameda	475,178	344,177	131,001	38.1	705	291	404	+113	+38.8%
Alpine (N. C. S.)*..	236	243	-7	-2.9					
Amador (N. C. S.)..	8,494	7,793	701	9.0	7				
Butte	34,010	30,030	3,980	13.3	29	19	18		-5.2%
Calaveras	6,009	6,183	-174	-2.8	9				
Colusa	10,257	9,290	967	10.4	6				
(Yolo-Colusa)									
Contra Costa	78,554	53,889	24,665	45.8	61	40	37		-7.5%
Del Norte (N.C.S.)	4,734	2,759	1,975	71.6	3				
Eldorado (N.C.S.)	8,311	6,426	1,885	29.3	4				
Fresno	144,369	128,779	15,590	12.1	133	114	103		-9.6%
Glenn	10,935	11,853	-918	-7.7	14	13	7		-4.6%
Humboldt	43,189	37,413	5,776	15.4	42	23	36	+13	+56.5%
Imperial	60,894	43,453	17,441	40.1	34	21	22	+1	+4.7%
Inyo (N. C. S.).....	6,604	7,031	-427	-6.1	6				
Kern	82,219	54,843	27,376	49.9	63	39	48	+9	+23.0%
Kings (N. C. S.)....	25,275	22,031	3,244	14.7	13				
Lake (N. C. S.).....	7,166	5,402	1,764	32.7	13				
Lassen	12,587	8,507	4,080	48.0	8	6	14	+8	+133.3%
(Lassen-Plumas)									
Los Angeles	1,233,561	576,673	656,888	113.9	3678	1098	1759	+661	+60.2%
Madera (N. C. S.)..	17,152	12,203	4,949	40.6	15				
Marin	41,635	27,342	14,293	52.3	34	16	19	+3	+18.7%
Mariposa (N.C.S.)	2,530	2,775	-245	-8.8	2				
Mendocino	23,491	24,116	-625	-2.6	22	20	15		-25.0%
Merced	36,900	24,579	12,321	50.1	23	19	20	+1	+5.2%
Modoc (N. C. S.)....	8,038	5,425	2,613	48.2	9				
Mono (N. C. S.).....	1,355	960	395	41.1	1				
Monterey	53,668	27,980	25,688	91.8	51	23	28	+5	+21.7%
Napa	22,832	20,678	2,154	10.4	39	15	25	+10	+66.6%
Nevada (N. C. S.)..	10,597	10,850	-253	-2.3	10				
Orange	118,611	61,375	57,236	93.3	137	57	86	+29	+50.8%
Placer	24,442	18,584	5,858	31.5	33	25	26	+1	+4.0%
Plumas	7,909	5,681	2,228	39.2	7				
(Lassen-Plumas)									
Riverside	82,266	50,297	31,969	63.6	85	45	48	+3	+6.6%
Sacramento	141,915	91,029	50,886	55.9	159	92	125	+33	+35.8%
San Benito	11,310	8,995	2,315	25.7	14	1	7	+6	+600.0%
San Bernardino	133,878	73,401	60,477	82.4	155	69	106	+37	+53.6%
San Diego	209,477	112,248	97,229	86.6	380	150	217	+67	+44.6%
San Francisco	†637,212	506,676	130,536	25.8	1509	735	913	+178	+24.2%
San Joaquin	102,805	79,905	22,900	28.7	106	75	83	+8	+10.6%
San Luis Obispo	29,617	21,893	7,724	35.3	32	21	15		-28.5%
San Mateo	77,135	36,781	40,354	109.7	56	14	29	+15	+107.1%
Santa Barbara	65,075	41,097	23,978	58.3	103	54	74	+20	+37.0%
Santa Clara	144,921	100,676	44,245	43.9	233	104	142	+38	+36.5%
Santa Cruz	37,405	26,269	11,136	42.4	49	26	30	+4	+15.3%
Shasta	13,925	13,361	564	4.2	10	16	9		-43.7%
Sierra (N. C. S.)....	2,419	1,783	636	35.7	2				
Siskiyou	25,505	18,545	6,960	37.5	22	16	15		-6.2%
Solano	40,831	40,602	229	0.6	42	15	17	+2	+13.3%
Sonoma	62,248	52,090	10,158	19.5	64	42	45	+3	+7.1%
Stanislaus	56,263	43,557	12,706	29.2	50	38	39	+1	+2.6%
Sutter	14,618	10,115	4,503	44.5	6				
(Yuba-Sutter)									
Tehama	13,839	12,882	957	7.4	15	8	11	+3	+37.5%
Trinity (N. C. S.)..	2,811	2,551	260	10.2	1				
Tulare	77,465	59,031	18,434	31.2	66	35	36	+1	+2.8%
Tuolumne	9,235	7,768	1,467	18.9	11	6	6		
Ventura	54,577	28,724	25,853	90.0	55	14	29	+15	+107.1%
Yolo (Yolo-Colusa)	23,618	17,105	6,513	38.1	25	21	25	+4	+19.0%
Yuba	11,327	10,375	952	9.2	16	9	13	+4	+44.4%
(Yuba-Sutter)									

* N. C. S. is legend used to mean "No County Society in this County." † Revised announcement.

Hyphenated County names in parenthesis indicate union county medical societies now existing.

State Senatorial districts consisting of more than one county are as follows: *First*, Modoc, Lassen, Plumas; *Second*, Del Norte, Siskiyou; *Fourth*, Mendocino, Lake; *Fifth*, Trinity, Shasta; *Seventh*, Sierra, Nevada, Placer; *Eighth*, Tehama, Glenn, Colusa; *Ninth*, El Dorado, Amador, Alpine; *Tenth*, Yuba, Sutter; *Eleventh*, Napa, Yolo; *Twelfth*, Merced, Madera; *Twentieth*, Monterey, San Benito; *Twenty-sixth*, Tuolumne, Mariposa, Calaveras; *Twenty-eighth*, Mono, Inyo.

Some American Medical Association and California Medical Association Statistics

TABLE 1.—*Organization of Constituent State Associations*

Number of counties in California	58
Number component societies in California	40
Number of Counties in California not organized.....	15
Number of Physicians in California (eleventh American Medical Association Directory).....	9,421
Number of members in California Medical Association	4,959
Number of American Medical Association Fellows in California	3,849

* * *

TABLE 2.—*Approximate Count of Fellows and Subscribers on "Journal of the American Medical Association" Mailing List, January 1, 1930*

Subscribers who are "Fellows of American Medical Association"	3,640
"Non-Fellow" subscribers	2,511
Total subscribers in California	6,151

* * *

TABLE 3.—*California Physicians Receiving the "Journal of the American Medical Association"*

Total number California physicians receiving "Journal American Medical Association"	6,151
Total physicians in California (eleventh American Medical Association Directory)	9,421
Approximate percentage licensed California physicians receiving "Journal American Medical Association"	65%

* * *

Population of Principal Cities of California as Compiled by U. S. Bureau of the Census

City	1930	1920	Increase, 1920-1930*	
			Number	Per Cent
Alameda	34,392	28,806	5,586	19.4
Alhambra	†29,551	9,096	20,455	224.9
Anaheim	10,817	5,526	5,291	95.7
Bakersfield	26,179	18,638	7,541	40.5
Berkeley	81,543	56,036	25,507	45.5
Beverly Hills	17,428	674	16,754	585.8
Brawley	10,437	5,389	5,048	93.7
Burbank	16,429	2,913	13,516	464.0
Burlingame	13,055	4,107	8,948	217.9
Compton	12,291	1,478	10,813	731.6
Eureka	15,748	12,923	2,825	21.9
Fresno	52,558	45,086	7,472	16.6
Fullerton	10,820	4,415	6,405	145.1
Glendale	62,607	13,536	49,071	362.5
Huntington Park....	24,575	4,513	20,062	444.5
Inglewood	19,605	3,286	16,319	496.6
Long Beach	141,528	55,593	85,935	154.6
Los Angeles	†1,233,561	576,673	656,888	113.9
Modesto	13,847	9,241	4,606	49.8
Monrovia	10,880	5,480	5,400	98.5
Oakland	284,213	216,261	67,952	31.4
Ontario	13,570	7,280	6,290	86.4
Palo Alto	13,635	5,900	7,735	131.1
Pasadena	75,875	45,354	30,521	67.3
Pomona	20,695	13,505	7,190	53.2
Redlands	14,130	9,571	4,559	47.6
Richmond	19,945	16,843	3,102	18.4
Riverside	30,654	19,341	11,313	58.5
Sacramento	93,685	65,908	27,777	42.1
Salinas	10,260	4,308	5,952	138.2
San Bernardino	37,453	18,721	18,519	98.9
San Diego	147,897	74,683	73,214	98.0
San Francisco	†637,212	506,676	130,536	25.8
San Jose	57,547	39,642	17,905	45.2
San Leandro	11,315	5,703	5,612	98.4
San Mateo	13,439	5,979	7,460	124.8
Santa Ana	30,166	15,485	14,681	94.8
Santa Barbara	33,544	19,441	14,103	72.5
Santa Cruz	14,389	10,917	3,472	31.8
Santa Monica	36,993	15,252	21,741	142.5
South Gate†	19,501	.....	.....	.....
South Pasadena	13,724	7,652	6,072	79.4
Stockton	47,951	40,296	7,655	19.0
Vallejo	14,385	16,845	-2,460	-14.6
Ventura	11,432	4,342	7,090	163.3
Whittier	14,808	7,997	6,811	85.2

* A minus sign (-) denotes decrease.

† Revised announcement.

‡ Incorporated since 1920.

MEDICAL SCHOOL LEGISLATION

ANATOMY ACT OF CALIFORNIA*

This act, as amended in 1929, reads as follows:

The people of the State of California do enact as follows:

Section 1. It shall be the duty of every sheriff, coroner, keeper of a county poorhouse or reformatory, public hospital or asylum, county jail, state prison, or city or county undertaker, or any and all state, county, town and city officers having possession, charge or control of bodies to be buried at public expense, or the legally constituted representatives of any or all of these, to use diligence to notify the relatives of the deceased and in the absence of a claimant, who will assume the cost of burial at private expense, to notify by telegraph collect, immediately after the lapse of twenty-four hours after death, the state board of health or the duly authorized agent of the same, stating, whenever possible, the name, age, sex and cause of death of any person or persons required to be buried at public expense.

Sec. 2. It is hereby made unlawful for any person or persons, except those specifically authorized by law, to hold a postmortem examination on the body of the unclaimed dead without the express permission of the secretary of the state board of health or the duly authorized agent of the same.

Sec. 3. The unclaimed dead retained by the state board of health for educational purposes within the state shall be embalmed according to directions, and disposed of subject only to the instructions of the said board; *provided, however*, that such unclaimed dead shall be held for a period of thirty days by those to whom they may have been assigned for educational purposes, subject to claim and identification by any authenticated relative of the deceased for purposes of burial at private expense.

Sec. 4. The bodies of the unclaimed dead shall be used solely for the purpose of instruction and study in the promotion of medical education and science within the State of California, and any person or persons found guilty of the unlawful disposition, use or sale of the body or bodies of the unclaimed dead or violating any of the provisions of this act shall be guilty of misdemeanor.

Sec. 5. It shall be the duty of those in charge of all public institutions in which the deceased was an inmate to transmit, upon request, to the secretary of the state board of health or to any person designated by said board a brief medical history of the unclaimed dead for purpose of identification and permanent record, which records shall be open to inspection by any state or county official or prosecuting attorney. All persons receiving the unclaimed dead for educational purposes within the State of California shall bear all reasonable expense incurred in the preservation and transportation of the dead and shall keep a permanent record of bodies received, giving the identification number, the name, age, sex, nationality and race, if possible, together with the place of last residence of the deceased and the source and disposition—with dates— of the body.

Sec. 6. Whenever the duly authorized officer or agent of the state board of health deems a body required to be buried at public expense, unsuitable or unnecessary for scientific purposes, he shall notify the official custodian of such body or bodies in order that it may be cremated, or buried at public expense as required by law. No warrants for the payment of the expenses of the burial of any person whose body is required to be buried at public expense shall be drawn or paid except upon the certificate of the duly authorized officer or agent of the state board of

* See, also, article by Dr. A. W. Meyer of Stanford, printed in this issue, and which gives a history of the anatomy laws of California preceding the enactment of the Act here reprinted page 703. Also editorial, page 753.

(Continued on Page 40, Adv. Sec.)

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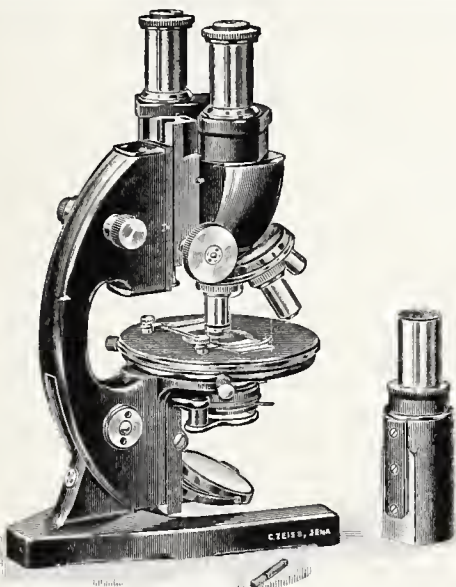
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ANATOMY ACT OF CALIFORNIA

(Continued from Page 768)

health, stating that such body is unnecessary or unfit for anatomical purposes, or that the body is that of a soldier, sailor, or marine, or that of a widow of a soldier, sailor, or marine. Whenever, through the failure of any person to duly notify, or to promptly deliver into the custody of the educational institutions at the place of death the body of a deceased indigent as required by this act, such body shall become unfit for scientific or educational purposes the duly authorized officer or agent of said state board of health shall so certify and such body shall be buried at the expense of those guilty of noncompliance with such provisions of this act.

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authorized and directed to permit, with the consent of relatives, or in the absence of such relatives, with the consent of the state board of health or the duly authorized agent of the same, any representative of the anatomical or pathological departments of properly incorporated medical departments, schools, or colleges to obtain at the time of necropsy or inquest, such material in the recent state as may be needed for scientific purposes, if said material is not required for the legal purposes of the state.

Sec. 8. Sections 3094 and 3095 of the Political Code, and all other acts or portions of acts in conflict with this act, are hereby repealed.

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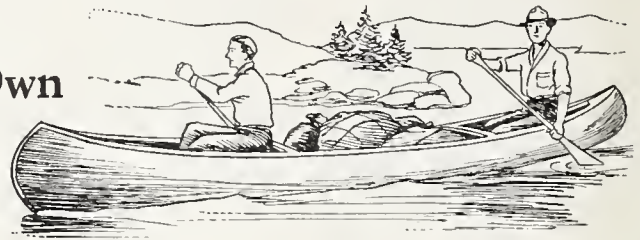
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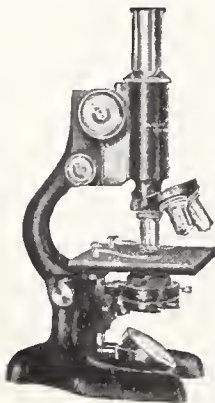
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Sane Sympathy.—Friends who send flowers to patients in the Reading Hospital, Reading, Pennsylvania, are encouraged to invest the money they would ordinarily spend for flowers in hospital service instead, says the *Modern Hospital*.

The plan in use there was described by Dr. E. D. Funk, associate medical director of the hospital, at the recent Congress on Medical Education, Medical Licensure and Hospitals. The hospital has adopted a policy of issuing courtesy cards so that a friend, instead of sending up a \$5 bouquet of flowers, may come to the desk and say: "My friend is here, I believe you have a system whereby I may partly defray his expenses." As a result, he pays \$5, the cost of his friend's room for the day. He sends a card to his friend with this message: "My dear —, I wish to extend to you my greatest sympathy, and I want you to be my guest for the day in this hospital. I wish you might have a speedy recovery. Your old friend, —."

"The patient is not resentful," Doctor Funk said. "He does not think he is receiving charity. He is a guest. What does a person do if he has no room for his friends in his home? He sends them to a hotel and pays their bills. For the person who is in trouble and sick, his friends may help him a little by expressing sympathy in this way." Certainly it is more practicable than "saying it with flowers."—*International Medical Digest*, August 1930.

A Bulwark of Civilization.—All too often the work of the medical examiner goes unhonored and unsung. Yet he is the first line of defense against homicide. If it were not for the skill and patience of the medical examiner in unraveling the first threads in the tangled web of mystery and deception that all too often surrounds a case of homicide there would be far less deterrence for the criminally inclined of our population, even in these days of rampant crime.

Perhaps with the present difficulties inherent in the administration of justice in this country there is but little need for refinement over the crude methods of shooting and bombing that are at present favored by our gangsters. But it is probable that should these cruder methods go out of style, quiet and more subtle means of extermination would be employed. An obvious murder calls for reprisals, either by rival gangs or by the tardy hand of justice. A skilfully arranged fatal illness leads only to mourning. With the passage of the "pineapple" and the "belly gun" sooner or later more refined methods must come into play and here the skill of the medical examiner in detecting poisoning, in clarifying obscure causes of death, would be a strong threat to the immunity that otherwise might be expected.

While unfortunately this country is far behind Europe in the scientific and early detection of crime and the investigation of mysterious deaths, nevertheless Massachusetts may well be proud of the position which she occupies among the American commonwealths. The study of the values and shortcomings of the coroner and medical examiner systems of our great cities is both fascinating and disheartening, particularly when one contrasts the strides that Europe has made in legal medicine.—*The New England Journal of Medicine*, August 28, 1930.

Probation.—At the present time such service is being rendered to some extent in those counties where the Institute for Juvenile Research holds its conferences, some eleven in all. While these conferences may be extended and will be of infinite value in creating public sentiment and in bringing to counties specially trained psychiatrists, it is not to be expected, nor is it probably to be desired, that the institute could furnish sufficiently constant or continuing service to meet the daily needs of the active courts. It is the opportunity of the local medical profession to meet

(Continued on Next Page)

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(Continued from Page 47)

this need and, if it will, the local medical profession can do it better than any other agency.

If county medical societies and local physicians will become sufficiently interested to provide for their own courts such medical guidance as the intelligent administration of justice requires it will serve the desirable purpose of preventing a multiplicity of public officials to give this service.

There will be need for the highly specialized service of the Institute of Juvenile Research in affording, if you will, expert consultation in unusual cases and this service may be desired by the court or his medical advisers. The institute will always prove invaluable in bringing to the local medical profession the advances in this rapidly developing branch of medical service and of standardizing the methods and procedure in this work.

We often feel, in dealing with probation and the medical aspects of probation, that the 102 counties of Illinois are talking each in its own peculiar language unintelligible to the other courts of the state. The institute, the county medical societies and especially the Illinois State Medical Society may serve admirably to give to Illinois uniformity of understanding.

In the institute staff conferences held bimonthly in eleven counties and with which many of the public spirited physicians of Illinois are familiar, the procedure has been developed with proper deference to the medical profession and with the recognition of the part that the medical profession must play in the future.

Where there is no family physician, which occurs in about one-third of the cases presented, the county medical society is asked to appoint some qualified physician to do this work and the fee is paid by the county. The physicians making the original diagnosis are always invited to the staff meetings when the

cases are discussed and every effort is made by Doctor Schroeder and his assistants to coöperate with the local physicians.

The policy of the state medical society which has been especially apparent during the past few years of taking the initiative in public affairs requiring medical guidance rather than allowing the public to take the lead, gives gratifying assurance to those of us who are struggling to establish standards in probation of what we may expect through county medical societies in the future. It can hardly be expected that each court in the state could find in the medical societies in his community a trained psychiatrist nor is this essential if there can be in each county in Illinois physicians who will master the rudiments of modern psychology and psychiatry, men in good standing in their medical societies and having the confidence of the public. If every court can have such assistance the problem of the prevention of crime is on its way toward a solution. Such physicians recommended or designated by the medical society could serve as the unofficial advisers and friends of the court and render most invaluable service.—Mrs. G. T. Palmer, Illinois State Probation Officer, *Illinois Medical Journal*, September 1930.

Is There a Doctor Present?—Recently health column conductor Brady in the Brooklyn *Eagle* presented the idea to the public as follows:

"An emergency is a sudden, unexpected occurrence, and for that reason it is more or less alarming. Be it the collapse of some one in a crowd, from cerebral hemorrhage, diabetic coma or angina pectoris, or the collapse of a building, or a riot, or an outbreak of war, or a terrible earthquake, or flood, or famine, or plague, there is inevitably a cry for the doctor. When you say doctor under such circumstances you mean doctor. There is only one kind of doctor you mean then.

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"It is all very well, of course, to address a Ph. D., a D. D., an LL. D., or any other individual with an academic doctorate degree as 'Doctor.' It is all wrong to let Tom, Dick, and Harry pose as 'Doctor' for business purposes. It leads to much needless confusion and sometimes to disaster. The use of the title as a trade symbol or badge ought to be restricted to honest-to-goodness physicians, for the welfare of the public."

All the effort now being made to have the public seek medical care from licensed and registered physicians falls rather flat when so many physicians fail to register every year. Again, as Doctor Brady says:

"As things are now, one must be on guard whenever anybody purporting to be a 'Doctor' appears on the scene."—*Long Island Medical Journal*, August 1930.

A Viewpoint on Physicians.—Knute Rockne, recognized as one of the most illustrious and resourceful of football coaches, is also reputed to be one of the keenest students of human nature.

Rockne, during his career as a supervisor of athletics, has come into contact with thousands of young men and has had an opportunity to size them up as

to character and personality both on and off the athletic field. So his observations and philosophy are not only refreshing but carry considerable weight.

Not long ago in one of his syndicated columns, Rockne took occasion to trace the career of one of his former gridiron stars who had elected to enter medicine.

On concluding his article, the famous coach made a few observations concerning the medical profession generally which differ decidedly and wholesomely from the comments aired occasionally by those who claim to be authoritative critics of this, that, and the other.

"No other profession is nearly so exacting," writes Mr. Rockne concerning the profession of medicine. "I have been wondering what makes young men want to go into the practice of medicine with all its grief, endless hours, long preparation and what not. It has been my observation that the good doctors have a sort of spark in their eyes, whereas many other professions interest men from the standpoint of monetary reward, easy livelihood, soft berth, prestige, or a stepping stone to something else. This can never be said of medicine. Medicine apparently is all-absorbing and occupies all of a man's wakeful moments, and even some of the others. I have tried to analyze some successful doctors and I find that all of them have personality, ability, honesty, capacity for work, a burning zeal toward perfection in his chosen specialty, and intense responsibility regarding the human lives he is taking care of."

Mr. Rockne has not only pictured the successful physician as he sees him, but he has also summarized the requirements for success in the practice of medicine. Unless the youngster with the ambition to become a good doctor can measure up to the high qualifications named by Mr. Rockne, he should seek other fields for his life's work.—Editorial, *Ohio State Medical Journal*, September 1930.



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"Only those clinical laboratories in which the space, equipment, finances, management, personnel and records are such as will insure honest, efficient and accurate work may expect to be listed as approved."

"The housing and equipment should be sufficient to permit all essential technical procedures to be properly carried out."

THE DIRECTOR

"The director of an approved clinical laboratory should be a graduate of an acceptable college or university of recognized standing, indicating proper educational attainments. He shall have specialized in clinical pathology, bacteriology, pathology, chemistry or other allied subjects, for at least three years. He must be a man of good standing in his profession."

"The director shall be on full time, or have definite hours of attendance, devoting the major part of his time to the supervision of the laboratory work."

"The director may make diagnoses only when he is a licensed graduate of medicine, has specialized in clinical pathology for at least three years, is reasonably familiar with the manifestation of disease in the patient, and knows laboratory work sufficiently well to direct and supervise reports."

"The director may have assistants, responsible to him. All their reports, bacteriologic, hematologic, biochemical, serologic and pathologic should be made to the director."

RECORDS

"Indexed records of all examinations should be kept. Every specimen submitted to the laboratory should have appended pertinent clinical data."

PUBLICITY

"Publicity of an approved laboratory should be directed only to physicians either through bulletins or through recognized technical journals, and should be limited to statements of fact, as the name, address, telephone number, names and titles of the director, and other responsible personnel, fields of work covered, office hours, directions for sending specimens, etc., and should not contain misleading statements. Only the names of those rendering regular service to the laboratory should appear on letterheads or other form of publicity."

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" * * There should be no dividing of fees or rebating between the laboratory or its director and any physician, corporate body or group. * * *"*

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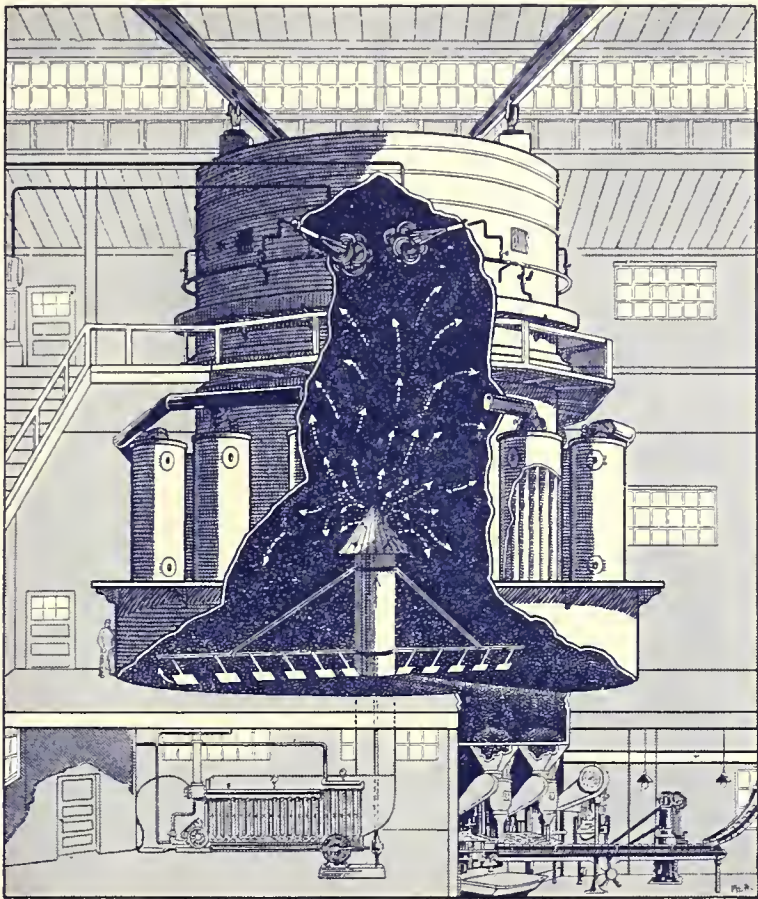
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CONTENTS AND SUBJECT INDEX

SPECIAL ARTICLES:

Dermatologic Therapeutics—Basic Principles and Technique. By Moses Scholtz, Los Angeles.....769

Discussion by Stuart C. Way, San Francisco; George D. Culver, San Francisco.

The Specific Radiosensitiveness of Lymphocytes—Its Significance in Radiotherapy. By Arthur U. Desjardins, Rochester, Minnesota.....775

Unexplained Eosinophilia. By A. B. Stockton, San Francisco.....781

Discussion by Ernest H. Falconer, San Francisco; Charles L. Connor, San Francisco.

Allergic Toxemia and Migraine Due to Food Allergy. By Albert H. Rowe, Oakland 785

Discussion by V. G. Alderson, Oakland; Samuel H. Hurwitz, San Francisco; H. E. Henderson, Santa Barbara.

Mild Mental Disturbances—Prevalent Causes. By Thomas G. Inman, San Francisco 794

Late Syphilis—Treatment With a Single Strain of Malaria. By Ross Moore, Los Angeles 796

Discussion by Henry G. Mehrtens, San Francisco; Walter E. Leonard, Los Angeles.

Immunization Against Diphtheria With Toxin-Antitoxin. By H. E. Thelander, San Francisco 798

Rural Obstetrics. By J. H. Peck, Tooele, Utah 801

Discussion by T. B. Beatty, Salt Lake City; Ralph J. Thompson, Los Angeles; Lyle G. McNeile, Los Angeles.

Peptic Ulcers—Diagnosis and Treatment. By Philip King Brown, San Francisco 804

The William Bebb Collection of Prints of Paris Hospitals. The Lure of Medical History. By Eva West, San Francisco 809

CLINICAL NOTES AND CASE REPORTS:

Compression Fracture of the Fifth Lumbar Vertebra. By S. Nichols Jacobs and Lawrence M. Trauner, San Francisco 812

Diverticula of the Stomach. By Milton J. Geyman, Santa Barbara.....813

Dystocia Due to Fetal Ascites. By John N. Ewer, Oakland 814

Case Record from University of California Hospital 814

BEDSIDE MEDICINE:

Hyperthyroidism 818

Discussion by Willard E. Kay, San Francisco; A. B. Cooke, Los Angeles; John Hunt Shephard, San Jose.

EDITORIALS:

County Society By-Laws—In Relation to Dues and Membership.....820

Letter of October 6 and Its Enclosure.....820

Can a Corporation Practice Medicine—Court Rules Not.....820

Comment on This and That.....821

MEDICINE TODAY:

Urography. By Adolph A. Kutzmann, Los Angeles 824

Reduction of Fractures and Dislocations Under Local Anesthesia. By Edmund Butler, San Francisco 825

The Treatment of Laryngeal Tuberculosis. By Charles Rubinstein, Duarte.....825

Non-Specific Urethritis in the Female. By Roger W. Barnes, Los Angeles.....826

STATE MEDICAL ASSOCIATIONS:

California Medical Association.....827

Minutes of the Council of the California Medical Association.....827

Woman's Auxiliary of the California Medical Association 839

Nevada State Medical Association.....840

Utah State Medical Association.....840

MISCELLANY:

News 844

Much in Little 844

Correspondence 845

Department of Public Health.....845

Medico-Legal 846

Twenty-five Years Ago.....847

California Board of Medical Examiners 848

Directory of Officers, Sections, County Units and Woman's Auxiliary of the California Medical Association.....

Adv. page 2

Book Reviews Adv. page 11

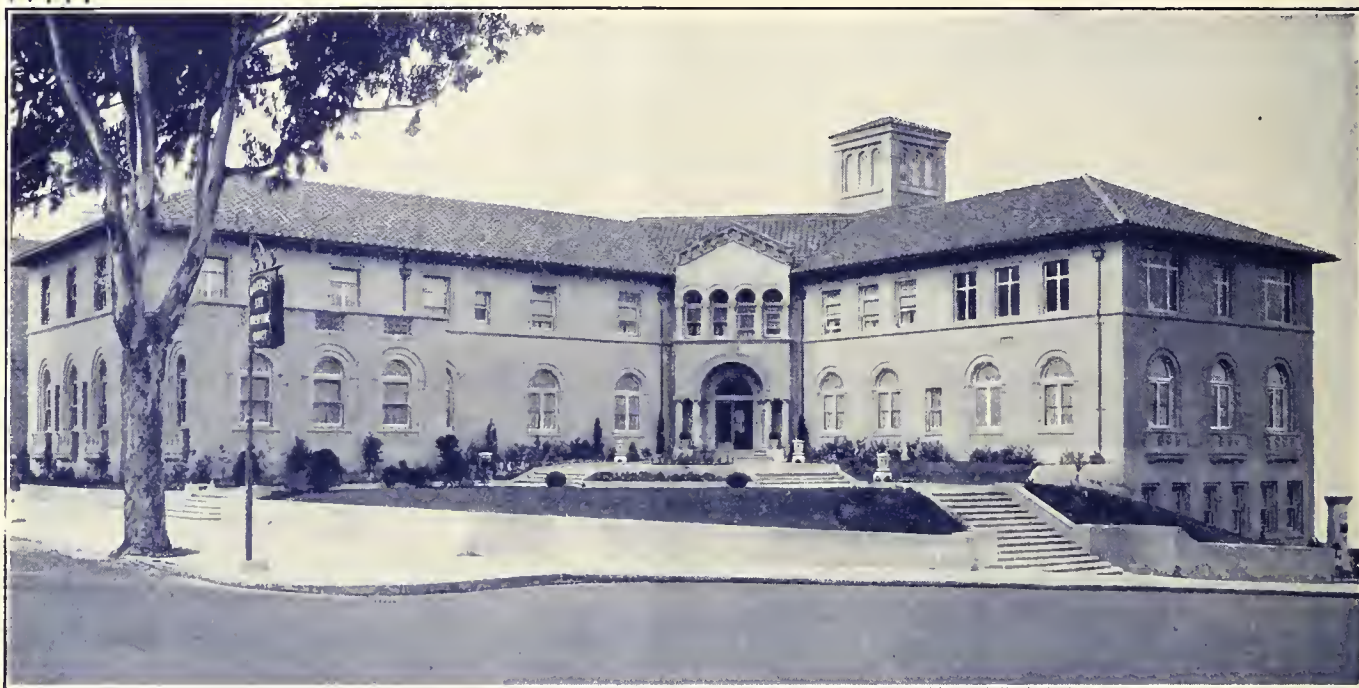
Truth About Medicines.....Adv. page 18

ADVERTISEMENTS—INDEX:

Adv. page 8

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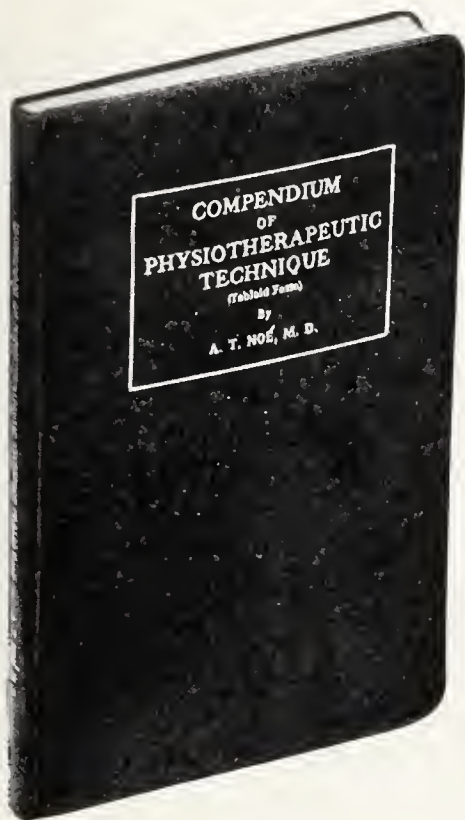
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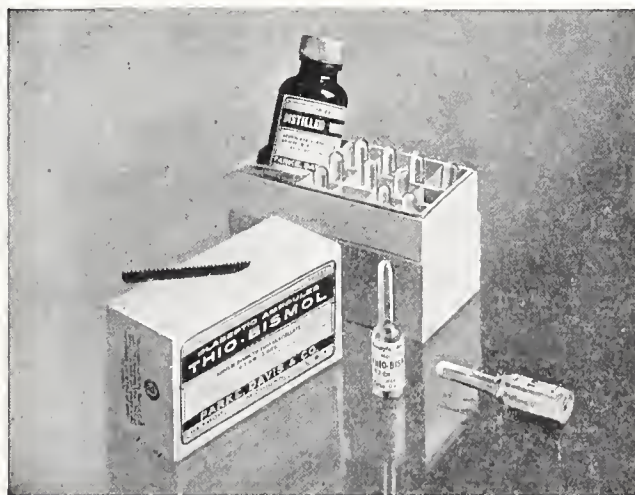
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Members of the California Medical Association can aid their Journal and the firms who advertise therein, by coöperation as indicated in the footnote on this page

	Page		Page		Page
Alexander Sanitarium	17	Guardian Life Insurance Com-		Petrolagar Laboratories, Inc.....	38
Aloe Co., A. S.....	41	pany, The	30	Podesta and Baldocchi.....	10
Alum Rock Sanatorium.....	19	Gunn, Herbert, Stool Examina-		Post Graduate Hospital and	
American Surgical Sales Co.,		tion Laboratory	24	Medical School	14
Ltd., The	33	Guth, C. Rodolph, Clinical Lab-		Post Graduate School of Sur-	
Approved Clinical Laboratories..	53	oratory	10	gical Technique, Inc.....	56
Banning Sanatorium	46	Hill-Young School of Corrective		Pottenger Sanatorium	39
Bard-Parker Company, Inc.....	12	Speech	24	Purity Spring Water Co.....	15
Barr, Harry C.....	22	Hittenberger Co., C. H.....	10		
Barry Co., The James H.....	54	Hoffman, La Roche, Inc.....	13	Rainier Brewing Co.....	44
Bausch & Lomb Optical Co.....	42	Holland-Rantos Co., Inc.....	24	Riggs Optical Company.....	31
Benjamin & Rackerby.....	33	Hospitals and Sanatoriums.....	6		
Benjamin, M. J.....	45	Hynson, Westcott & Dunning,		Saint Francis Hospital.....	14
Bittleston Collection Agency,		Inc.	39	San Francisco Ladies' Protective	
Inc.	44	Johnston-Wickett Clinic	31	and Relief Society, The.....	15
Broemmel's Prescription Phar-		Joslin's Sanatorium.....	40	Scherer Co., R. L.....	29
macies	3	Knox Gelatine Laboratories.....	25	Scripps Metabolic Clinic and	
Brown Press	36	Laboratory Products Co.....	3 Cover	Memorial Hospital	18
Bush Electric Corporation.....	1	Las Encinas Sanitarium.....	17	Sharp & Dohme.....	34
		Lederle Laboratories, Inc.....	23	Shasta Water Co., The.....	22
California Lima Bean Growers'		Lengfeld's Pharmacy	24	Shumate's Prescription Phar-	
Association	39	Lilly & Company, Eli.....	32	macies	24
California Optical Co.....	30	Lister Bros., Inc.....	11	Soiland, Albert (Radiological	
California Sanatorium	36	Livermore Sanitarium	27	Clinic)	31
Calso Water Co.....	48			Southern Sierras Sanatorium.....	37
Camp & Co., S. H.....	20	Maltbie Chemical Co., The.....	28	Special Graduate Course in	
Canyon Sanatorium	18	Maltine Company, The.....	5	Proctology	22
Certified Laboratory Products....	46	Mead Johnson & Co.....	21	Squibb & Sons, E. R.....	26
Certified Milk	51	Medico-Dental Finance Corp.....	48	Stacey, J. W., Medical Books.....	11
Charles B. Towns Hospital.....	47	Mellin's Food Co.....	15	St. Joseph's Hospital.....	40
Children's Hospital	41	Merck & Co., Inc.....	49	St. Luke's Hospital.....	23
Clark-Gandion Co., Inc.....	14	Merrell-Soule Co., Inc.....	50	St. Mary's Hospital.....	29
Classified Advertisements.....	10	Milk Commission of the Los An-		Storm Binder and Abdominal	
Colfax School for the Tuber-		geles County Medical Ass'n.....	51	Supporter	41
culous	55	Monrovia Clinic	44	Sugar Institute, The.....	16
Compton Sanitarium and Las		Mulford Co., H. K.....	34	Sugarman Clinical Laboratory....	28
Campanas Hospital	9				
Cutter Laboratory	4 Cover	National Ice and Cold Storage		Towns Hospital, Charles B.....	47
		Company	27	Trainer-Parsons Optical Co.....	35
Dairy Delivery Co.....	35	New York Polyclinic Medical		Transactions of the American As-	
Dante Sanatorium	4 Cover	School and Hospital.....	9	sociation for Study of Goiter....	56
Dewar & Hare Electric Co.....	42	New York Post Graduate Med-		Twin Pines	42
Doctors' Business Bureau.....	19	ical School and Hospital.....	36		
Dry Milk Co., The.....	52	Nichols Nasal Syphon.....	37	Union Square Building.....	11
		Nonspi Company	40	United States Fidelity & Guar-	
Four Fifty Sutter.....	36	Oaks Sanitarium	9	anty Company	35
Franklin Hospital	45	Officers of the California Med-			
Furscott, Hazel E.....	24	ical Association	2-4	Vitalait Laboratory	14
		Officers of Miscellaneous Med-		Wallace, Sidney J.....	37
Grace Deere Velie Metabolic		ical Associations	6	Walters Surgical Company.....	56
Clinic, The	43	Park Sanitarium	24	Wedekind Co., Frank F.....	47
Graduate School of Medicine,		Parke, Davis & Co.....	7		
Tulane University of La.....	24				
Greens' Eye Hospital.....	2 Cover				

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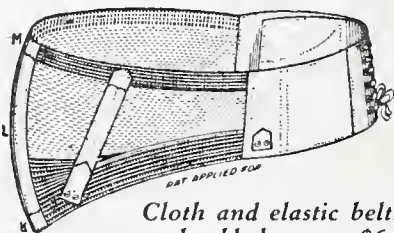
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BOOKS RECEIVED

The Pathology of Diabetes Mellitus. By Shields Warren, M. D., Pathologist to the New England Deaconess Hospital, the New England Baptist Hospital and the Huntington Memorial Hospital, Boston. With a foreword by Elliott P. Joslin, M. D. Cloth. Pp. 212, illustrated with 83 engravings and two colored plates. Price, \$3.75 net. Philadelphia: Lea & Febiger, 1930.

A Treatise on Orthopedic Surgery. By Royal Whitman, M. D., M.R.C.S., F.A.C.S., consultant to the Hospital for the Ruptured and Crippled, to St. Giles and St. John's Guild Hospitals, to the New York and Darrach Homes for Crippled Children, to the Polyclinic Hospital, to St. Agnes's Hospital, Westchester and to the Shriners' Hospital at Montreal, to the New York State Board of Health and to the State Department of Labor. Ninth edition, thoroughly revised. Cloth. Pp. 1085, illustrated with 981 engravings. Price, \$10 net. Philadelphia: Lea & Febiger, 1930.

A Practical Medical Dictionary. Of words used in medicine with their derivation and pronunciation, including dental, veterinary, chemical, botanical, electrical, life insurance and other special terms. By Thomas Lathrop Stedman, A. M., M. D., editor of the "Twentieth Century Practice of Medicine." Eleventh revised edition. Fabric. Pp. 1222, illustrated. Price, \$7.50 net. New York: William Wood and Company, 1930.

Minor Surgery and Bandaging. For the use of House Surgeons, Dressers and Junior Practitioners. Twentieth edition. By Gwynne Williams, M. S., F.R.C.S., Surgeon, University College Hospital. Leather. Pp. 445, with 262 illustrations. Price, \$3.50. Philadelphia: F. A. Davis Company, 1930.

Laboratory Medicine. A Guide for Students and Practitioners. By Daniel Nicholson, M. D., member of the Royal College of Physicians, London, Assistant Professor of Pathology, University of Manitoba. Cloth. Pp. 433, illustrated with 108 engravings and a colored plate. Price \$6 net. Philadelphia: Lea & Febiger, 1930.

A Textbook of Pathology. Edited by E. T. Bell, M. D., Professor of Pathology in the University of Minnesota, Minneapolis. Cloth. Pp. 627, illustrated with 316 engravings and two colored plates. Price, \$8 net. Philadelphia, Lea & Febiger, 1930.

United States Naval Medical Bulletin. Published quarterly for the information of the Medical Department of the Navy. Issued by the Bureau of Medicine and Surgery, Navy Department, Division of Planning and Publications, Capt. W. Chambers, Medical Corps, U. S. Navy, in charge. Edited by Lieutenant-Commander Robert P. Parsons, Medical Corps, U. S. Navy. Vol. XXVIII, No. 4. Washington, D. C.: United States Government Printing Office, 1930.

Diseases of the Ear. By Philip D. Kerrison, M. D., Consulting Aural Surgeon to the Manhattan Eye, Ear and Throat Hospital and to the Willard-Parker Hospital for Infectious Diseases, New York. Fourth edition, revised and enlarged. Cloth. Pp. 627, with 332 illustrations in text and two full pages in color. Price, \$7.50. Philadelphia and London: J. B. Lippincott Company, 1930.

Handbook of Anatomy. Being a complete compend of anatomy including the Anatomy of the Viscera, a Section on Surgical Anatomy, a Chapter on Dental Anatomy, numerous tables, and adopting the newer nomenclature designated the Basle Nomenclature, commonly called B.N.A. By James K. Young, M. D., F.A.C.S., late professor of Orthopedics, University of Pennsylvania. Revised by George W. Miller, M. D., F.A.C.S., Associate in Anatomy, Jefferson Medical College. Seventh revised edition. Leather. Pp. 460, with 154 engravings, some in colors. Price, \$3.75. Philadelphia: F. A. Davis Company, 1930.

Medical and Surgical Reports of the Episcopal Hospital. Vol. VI commemorating the seventy-fifth year of the hospital. Edited by John H. Arnett, M. D., the Episcopal Hospital, Front Street, Philadelphia. Cloth. Pp. 460, with illustrations. Philadelphia: Press of Wm. J. Dornan, 1930.

(Continued on Page 14)



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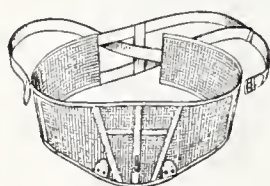


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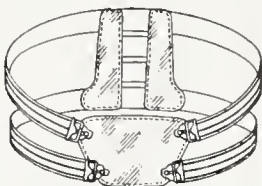
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BOOK REVIEWS

(Continued from Page 12)

Physical Diagnosis. By Richard Cabot. Tenth edition. Pp. 529. Illustrated. New York: William Wood and Company, 1930. Price, \$5.

The tenth edition of this classic work on physical diagnosis represents a revision of the former work, bringing it up to date in every respect. The more important changes are concerned with diagnosis of the various heart conditions and certain new laboratory procedures. The book remains as it was in 1905, the most comprehensive and authoritative monograph on the subject of physical diagnosis, and this, in spite of the fact that it describes no method or procedure with which the author himself is not thoroughly familiar. C. B.

Doctors and Specialists, A Medical Revue with a Prologue and a Good Many Scenes. By Morris Fishbein. Pp. 118. Illustrated. Indianapolis: The Bobbs-Merrill Company, 1930. Price, \$1.

Professor Rand, according to the author of this little book, once translated the proverb "Primum non nocere"

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as "no harm in once." Had the sentiment embodied in this translation appealed to the author of doctors and specialists and governed his pen even lightly, one feels that the periodic recrudescence of many venerable anecdotes might have been successfully avoided throughout this short work.

As personally delivered with Dr. Fishbein's own best rapid fire, nonstop technic, the reviewer has rarely listened to a more amusing satire than that on the super-efficient tonsil-snatching clinic of the future, as delineated on pages twenty-nine to thirty-one. But its mere reading now seems to deprive it of much of that humor.

The chapters on the obstetrician, the Christian Science practitioner and the chiropractor are really very amusing, especially the first mentioned. And this pediatric story culled from page sixty seems worth re-printing:

One colleague entered the home of a Senegambian family recently and while he examined an older child, the baby sat on the floor and howled. "That baby is spoiled," he said to the mother. "He is not," she retorted, "all cullud babies smells dat way."

Dr. Fishbein's immense energy, editorial, directorial, and, not least of all, monitorial, must always be admired, if not actually envied. But when it comes to that most

(Continued on Page 17)



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BOOK REVIEWS

(Continued from Page 15)

difficult undertaking, the constant output of sketches humorous and satirical, even he demonstrates the inevitable deficiencies of homo sapiens. He described the old-fashioned doctor's prescription as having a "flavor vaguely resembling a cross between that of a disappointed persimmon and a pawpaw gone to seed." Dr. Fishbein's sense of humor has not exactly deteriorated to that extent, but it cannot be denied that it has lost much of its pristine freshness.

However, this is doubtless entirely a matter of taste. Perhaps future Asclepiades, working on eight-hour shifts for the Federal Health Administration Bureau, will snatch odd moments from their clerical labors to chuckle over Dr. Fishbein's modest, old-fashioned type of humor.

L. G.

A Textbook of Massage for Nurses and Beginners. By Maude Rawlins. Pp. 144. Illustrated. St. Louis: The C. V. Mosby Company, 1930. \$2.

The general arrangement and contents of this book are excellently suited to its intended purpose. The facts

set forth, embracing a long, ripe experience in this type of work, are noteworthy. The historical résumé is interesting. The prominence given abdominal massage is far out of proportion to its importance and although caution is urged, emphasizing a knowledge of the diagnosis and a physician's supervision as essential, in the hands of the beginner and inexperienced harmful effects do occur. The emergencies chapter is pertinent and could well be adopted by all interested in rational medical treatment.

H. L. L.

Uterine Tumors. By Charles C. Norris. Pp. 251. Illustrated. (Harper's medical monographs.) New York and London. 1930.

This little book is a very concise and informative treatise which will enable the busy practitioner to obtain information without having to go through a good deal of reading. The subject is covered exhaustively in spite of its brevity. Roentgen ray and radium treatment of uterine tumors are well covered. Statistical data are well correlated and sufficiently inclusive to give accurate information.

The reviewer recommends Dr. Norris' "Uterine Tumors" as a handy book, well worth while to have in one's library.

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TRUTH ABOUT MEDICINES

New and Nonofficial Remedies

(Abstracts from reports of Council on Pharmacy and Chemistry, A. M. A.)

In addition to the articles previously enumerated the following have been accepted:

Eli Lilly & Co.—Amytal; Pulvules Sodium Amytal, three grains; Old Tuberculin, Human Strain, Concentrated two-vial packages.

McKessen & Robbins, Inc.—McKesson's Vitamin Concentrate of Cod-Liver Oil.

E. S. Miller Laboratories, Inc.—Ampoule Sterile Solution Dextrose, U. S. P., five grams, ten cubic centimeters; Ampoule Sterile Solution Dextrose, U. S. P., ten grams, twenty cubic centimeters.

Plant Products Co.—Plant's Magnesia Wafers.

The following articles have been exempted and in-

cluded with the List of Exempted Medicinal Articles (New and Nonofficial Remedies, 1930, p. 477):

H. K. Mulford Co.—Pollen Extracts Diagnostic (Mulford).

The following products have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in New and Non-official Remedies:

Gas-Gangrene Antitoxin (Combined) Refined and Concentrated (P. D. & Co.)—An antitoxic serum prepared from the toxins of *B. perfringens* (*B. welchii*) and vibrin septique. The quantity of the finished product in the marketed syringes contains one hundred units of each antitoxin. It is proposed for therapeutic use against gas-gangrene infection caused by *B. perfringens* and vibrin septique. It is marketed in syringes containing one hundred units of perfringens antitoxin and one hundred units of vibrin septique antitoxin. Parke, Davis & Co., Detroit.

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Soluble Gelatin Capsules, Parke, Davis & Company's Standardized Cod-Liver Oil, Ten Minims.—Each capsule contains ten minims of Parke, Davis & Company's Standardized Cod-Liver Oil (New and Nonofficial Remedies, 1930, p. 256). Parke, Davis & Company, Detroit.

Soluble Gelatin Capsules, Parke, Davis & Company's Standardized Cod-Liver Oil, Twenty Minims.—Each capsule contains twenty minims of Parke, Davis & Company's Standardized Cod-Liver Oil (New and Nonofficial Remedies, 1930, p. 256). Parke, Davis & Company, Detroit.

Soluble Gelatin Capsules, Parke, Davis & Company's Standardized Cod-Liver Oil, 2.5 Grams.—Each capsule contains 2.5 grams, Parke, Davis & Company's Standardized Cod-Liver Oil (New and Nonofficial Remedies, 1930, p. 256). Parke, Davis & Company, Detroit.

Soluble Gelatin Capsules, Parke Davis & Company's Standardized Cod-Liver Oil, Five Grams.—Each capsule contains five grams of Parke, Davis & Company's Standardized Cod-Liver Oil (New and Nonofficial Remedies, 1930, p. 256). Parke, Davis & Company, Detroit.—*Journal of the American Medical Association*, September 6, 1930, p. 729.

Quinin Bismuth Iodid.—A substance of variable composition containing between 18 and 20.1 per cent of bismuth, between 48.7 and 53.5 per cent iodine; and quinin. Quinin bismuth iodid is proposed as a means of obtaining the systemic effect of bismuth in the treatment of syphilis.

(Continued on Next Page)



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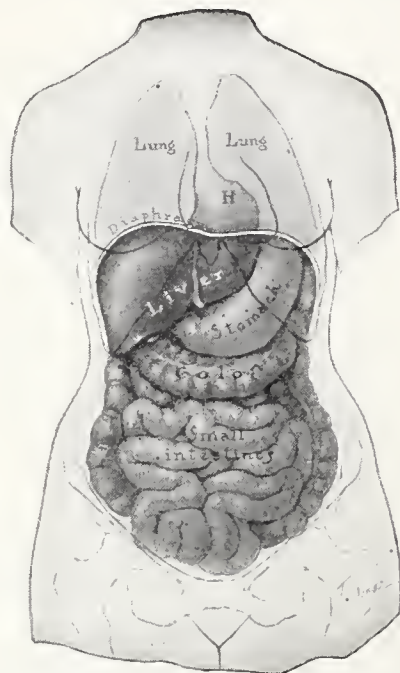


Figure A

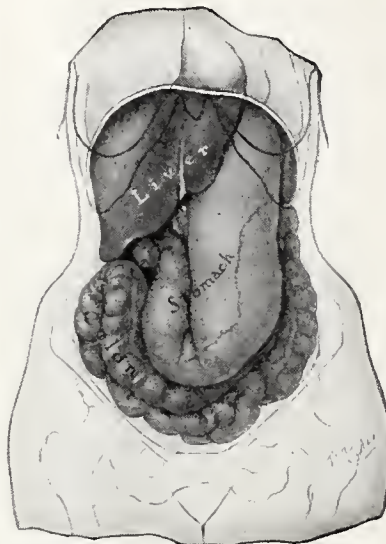


Figure B

POSITION AND RELATIONSHIP OF THE VISCERA IN THE FEMALE

Figure A — Normal female figure.

Figure B—Visceroptosis (abdominal ptosis, Glénard's disease, enteroptosis); position of colon, lying behind the stomach, indicated by dotted line.

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TRUTH ABOUT MEDICINES

(Continued from Preceding Page)

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Old Tuberculin, Human Strain, Concentrated (New and Nonofficial Remedies, 1930, p. 360).—This product is also marketed in packages of two vials, one containing a stated amount of tuberculin and the other sufficient diluent to make six dilutions. Eli Lilly & Company, Indianapolis.

Chiniofon (Searle).—A brand of chiniofon—N. N. R. (New and Nonofficial Remedies, 1930, p. 120). It is also marketed in the form of 0.25 gram (4 grains) tablets. G. D. Searle & Company, Inc., Chicago.—*Journal of the American Medical Association*, September 20, 1930, p. 865.

Plant's Magnesia Wafers.—Wafers, each containing magnesium hydroxid 0.3 gram (4.64 grains) compressed with the addition of sucrose and starch and essential oils as flavors. Used as an alkaline laxative and antacid. The magnesium content of each wafer is approximately equivalent to that of four cubic

centimeters of magnesium magma, U. S. P. Plant Products Company, Cleveland, Ohio.—*Journal of the American Medical Association*, September 27, 1930, p. 935.

FOODS

The following products have been accepted by the Committee on Foods of the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in Accepted Foods:

Kiddie Kanned Vegetables, Fruits, and Cereals (Kiddie Kanned Foods, Inc., Seattle, Washington).—Canned cooked and sieved vegetable soup, oat porridge, wheat porridge, spinach, tomatoes, carrots, apples, and peaches. They contain no added salt or sugar. To prepare these products the vegetables and fruits are washed, cooked under pressure to soften for sieving. The hot sieved foods are packed in cans, sealed, and processed. Crushed oats and wheat are cooked under pressure, sieved, packed hot, and processed.

Horlick's Malted Milk Lunch Tablets (Plain and Chocolate-Flavored) (Horlick's Malted Milk Corporation, Racine, Wisconsin).—These are Horlick's Malted Milk, plain and chocolate-flavored, compressed into tablets.—*Journal of the American Medical Association*, September 20, 1930, p. 865.

ACCEPTED DEVICES FOR PHYSICAL THERAPY

The following has been accepted by the Council on Physical Therapy of the American Medical Association for inclusion in its list of accepted devices for physical therapy:

Maltese X-Ray Lead Glass.—Maltese X-Ray Lead Glass (Semon Bache & Company, New York), is a lead glass designed for x-ray protective shields. Measurements of the protective qualities of several samples were made by the Bureau of Standards and were satisfactory.—*Journal of the American Medical Association*, September 20, 1930, p. 865.

(Continued on Page 22)

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The date of the clinic will be February 3 to 13, inclusive. Full morning and afternoon sessions will be held regularly.

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1406 Medical Arts Building
CLEVELAND, OHIO

TRUTH ABOUT MEDICINES

(Continued from Page 20)

PROPAGANDA FOR REFORM

Ambruster, Rusby—and Ergot.—For almost three years one Howard W. Ambruster, an importer of ergot, with the advice of H. H. Rusby, has charged vociferously, repeatedly, frantically, that the fluid-extract of ergot, U. S. P., of American manufacture, was grossly substandard. Controlled scientific evidence from creditable sources to sustain the charges has not been presented. In innumerable circular letters, in broadsides, in statements to the press and wherever he can get a hearing, Mr. Ambruster asserts there is a conspiracy on the part of the American Medical Association and of the Food, Drug, and Insecticide Administration of the United States Department of Agriculture to approve substandard drugs. Not only has the American Medical Association as an organization been attacked, but various officials have been subjected to Ambruster's diatribes. Moreover, the American Pharmaceutical Association, the office of the Secretary of the Treasury, many pharmaceutical houses, the office of the Secretary of Agriculture, the United States Pharmacopeia Revision Committee, and others have been included. The campaign which Ambruster has waged and continues to wage would command admiration if there appeared to be any sincerely altruistic motive for it. But there appears to be no evidence to substantiate his charges. Both the Council on Pharmacy and Chemistry and the *Journal of the American Medical Association* have reported on two different occasions that there was no evidence that fluidextract of ergot, U. S. P., as found on the market should not be used with confidence by American physicians. Last June the Committee on Agriculture of the United States Senate held hearings on the Ambruster charges. The evidence permitted to go into the record was not limited to the "indictment." Members of the medical profession and officials of the American Medical Association

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ciation were grossly accused by Ambruster and Rusby. While a definite report has not been made by the Senate Committee as a whole, the impression created on the technical members of the committee and apparently shared by most of the nontechnical members was fairly well summarized by comments made by Senators Copeland and Hatfield in the closing days of the hearing. Senator Copeland held that no evidence has been presented to show that the quality of fluidextract of ergot was a menace to mothers in childbirth and that he had not heard any testimony to show that the government officials had been lax in their enforcement of the law.—*Journal of the American Medical Association*, September 6, 1930, p. 722.

The Ambruster Ergot Situation.—During recent years, one Howard W. Ambruster has conducted a campaign against the Food and Drug Administration of the United States Department of Agriculture and against the officials of the American Medical Association. In his campaign, Mr. Ambruster has alleged repeatedly that there exists a conspiracy between the government department and the American Medical Association to approve substandard drugs, particularly ergot. Mr. Ambruster is in the ergot business. Such investigations as have been made prove that the charges of Mr. Ambruster are entirely without foundation. The vast majority of the ergot on the market is dependable and there has been no increase in deaths from puerperal hemorrhage. The government department attacked seems to have been operating with exceptional efficiency.—*Journal of the American Medical Association*, September 6, 1930, p. 730.

Ephedrin and Habit Formation.—An article appeared in a recent issue of the *Ladies' Home Journal* in which it was stated that ma huang is closely related to cocoa and that it is as dangerous as the narcotics of the cocoa group. It stated: "Ma huang. . . has cocaine's effects—it is exhilarating, habit forming,

(Continued on Page 27)

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SPINACH SALAD (Six Servings)

	Grams	Prot.	Fat	Carb.	Cal.
1½ tablespoons Knox Sparkling Gelatine.....	10	9			
¼ cup cold water.....	....	....	....	....	....
1¼ cups boiling water.....	....	....	....	....	....
2 tablespoons lemon juice.....	20	....	....	2	....
½ teaspoon salt.....	....	....	....	....	....
1½ cups cooked spinach, chopped.....	300	6	....	7	....
2 hard cooked eggs.....	100	13	10.5	....	....
Total	28	10.5	9	242.5	
One serving	5	2	1.5	40	

Soak gelatine in cold water and dissolve in boiling water. Add lemon juice, salt, strain and chill. When nearly set, stir in chopped spinach, mold and chill until firm. Serve on lettuce hearts or tender chicory leaves and garnish with hard cooked egg, cut lengthwise in sixths and sprinkled with paprika. Serve with mayonnaise.

RECIPES LIKE THESE HELP
DIABETIC PATIENTS KEEP THEIR
DIETS AND THEIR APPETITES

WINTER SALAD (Six Servings)

	Grams	Prot.	Fat	Carb.	Cal.
2 teaspoons Knox Sparkling Gelatine.....	4.5	4	....	....	....
¼ cup cold water.....	....	....	....	....	....
½ cup hot water.....	....	....	....	....	....
½ teaspoon salt.....	....	....	....	....	....
¼ cup vinegar.....	....	....	....	....	....
1½ cups grated cheese.....	150	43	54	....	....
½ cup chopped stuffed olives.....	70	1	19	8	....
½ cup chopped celery.....	60	1	....	2	....
¼ cup chopped green pepper.....	25	....	....	1	....
⅓ cup cream, whipped.....	75	2	30	2	....
Total	51	103	13	1183	
One serving	8.5	17	2	197	

Soak gelatine in cold water. Bring hot water and salt to boil and dissolve gelatine in it. Add vinegar and set aside to chill. When nearly set, heat until frothy, fold in cheese, olives, celery, pepper and whipped cream. Turn into molds and chill until firm. Unmold on lettuce leaf and serve.

EVERY physician knows the difficulty of diet control in diabetes—and will appreciate the value of Knox Sparkling Gelatine in dispelling monotony and arousing appetite without disturbing the purpose or the balance of the diet in the slightest degree.

The two recipes on this page show how perfectly Knox Gelatine fits into the diabetic diet. Where small quantities of vegetables, meat or fish are necessary, satisfying bulk may be supplied with Knox Gelatine, which combines perfectly with these essential foods, making them more attractive to the eye and continuously delightful to the taste.

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If you agree that recipes like the ones on this page will be helpful in your diabetic practice, write for our complete Diabetic Recipe Book—it contains dozens of valuable recommendations. We shall be glad to mail you as many copies as you desire. Knox Gelatine Laboratories, 417 Knox Ave., Johnstown, N. Y.

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The recent wide-spread clinical use of Viosterol preparations in the prevention of rickets has stimulated investigators to determine whether they are as effective in the prevention and treatment of rachitic tendencies as cod-liver oil. Leading workers in the field of rachitic research, from observation of hundreds of child subjects, have finally come to the conclusion that the present Viosterol preparations, namely, Viosterol-100 D, and Cod-Liver Oil with Viosterol-5 D, are of insufficient potency to guarantee sure results. These authorities in the medical profession, together with the Wisconsin Alumni Research Foundation and the Council on Pharmacy and Chemistry, have, therefore, agreed to increase the strength of all Viosterol preparations that are prepared under license from the Foundation.

These scientific studies indicate that the amount of Viosterol should be increased $2\frac{1}{2}$ to 3 times. Therefore, since October 1, 1930, Viosterol in Oil-100 D has become Viosterol in Oil-250 D. Cod-Liver Oil with Viosterol-5 D, has become Cod-Liver Oil with Viosterol-10 D. Viosterol preparations of lesser potency, now on the market, will no longer be available.

Advantages of Squibb Viosterol in Oil-250 D

1. **Highly Concentrated**—Odorless and tasteless; no danger of digestive disturbances following its use.
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4. **Specific Action**—Exerts unquestioned specific action in cases of rickets, rachitic tetany, osteomalacia and other calcium-phosphorus metabolic disorders.

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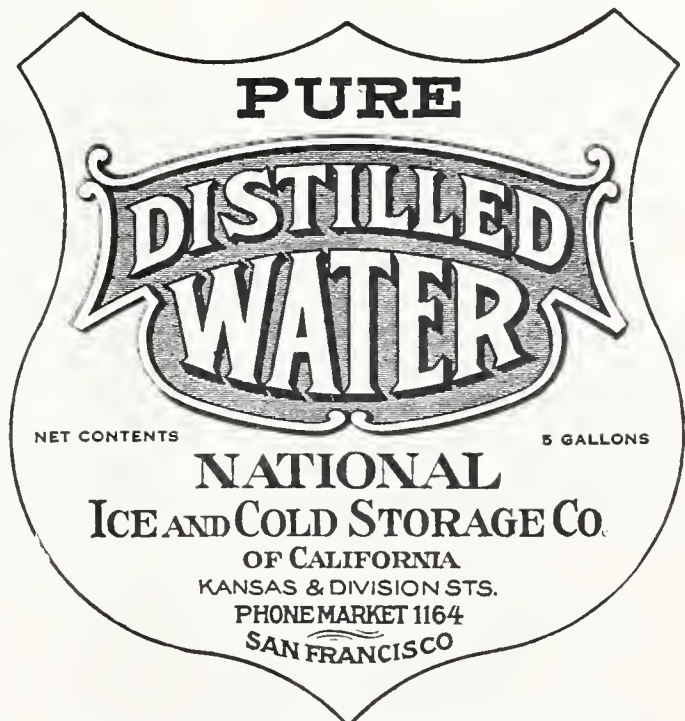
TRUTH ABOUT MEDICINES

(Continued from Page 23)

deadly." Chen and Schmidt in a recent monograph, "Ephedrine and Related Substances," state that investigators appear to agree that the prolonged use of ephedrin does not have any cumulative harmful effects and does not result in habit formation. In New and Nonofficial Remedies no reference is made to habit-forming properties of the drug. A search of the Quarterly Cumulative Index Medicus fails to reveal published articles on ephedrin as a habit-forming drug. Though it is known that the actions of ephedrin on the central nervous system resemble considerably those of cocaine, it is not believed that these are sufficiently pleasant to be a temptation; certainly the effects cannot be at all serious, or they would have become apparent before this. In a recently published report of the effects of ephedrin on animals it is stated that in humans, after prolonged use against asthma, it produced euphoria, and reports where the drug had to be discontinued on account of unpleasant stimulation. The absence of clinical reports of addiction does not substantiate the careless references of popular writers to habit formation. The available evidence indicates that there is little if any danger of ephedrin becoming a serious habit former.—*Journal of the American Medical Association*, September 6, 1930, p. 731.

Two Minor Mail-Order Frauds.—Chinese Herb Company of San Francisco and Webb Company, Springfield, Illinois, have been debarred from the mails. The Chinese Herb Company sold "herb treatments" through the mails for the alleged cure of practically all diseases and ailments. The Webb Company sold, through the mails, a mechanical device called the "Adjustor," sold under the claim that it would develop the male sexual organ.—*Journal of the American Medical Association*, September 6, 1930, p. 745.

(Continued on Next Page)



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EPHEDRINE NASAL JELLY—Maltbie is a preparation for the local relief of "colds" and conditions involving congestion of the nasal passages. It contains Ephedrine Sulphate, 1%; Menthol, 1/4%; Sodium Benzoate, 1/2%; in a special bland base. Supplied in plain tube with nasal tip.

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TRUTH ABOUT MEDICINES

(Continued from Preceding Page)

More Misbranded Nostrums.—The following products have been the subject of prosecution by the Food, Drug, and Insecticide Administration of the United States Department of Agriculture which enforces the Federal Food and Drugs Act: Fulton's Compound B 1 and B 2 (John J. Fulton Company), consisting essentially of sodium and calcium compound, nitrates, sulphates, borates, extracts of plant drugs including bearberry, a laxative drug, licorice, salicylic acid, a trace of alkaloids, alcohol, and water. Donnell's Indian Vegetable Oil (C. K. Donnell, M. D.), consisting essentially of cotton-seed oil containing volatile matter, including over twenty-two minims of chloroform to the fluidounce, together with oil of peppermint and camphor. Hyland's 14 (Standard Homeopathic Company), consisting essentially of milk sugar, with traces of potassium iodid and extracts of vegetable drugs, including gelsemium.—*Journal of the American Medical Association*, September 6, 1930, p. 745.

Ventriculin.—The Council on Pharmacy and Chemistry publishes a preliminary report on Ventriculin. It was presented by Parke, Davis & Company for consideration by the Council as a preparation of desiccated stomach tissues useful in the treatment of

pernicious anemia. The Council has postponed definite action in regard to the acceptance of Ventriculin to await (1) presentation by Parke, Davis & Company of a definitely standardized method of preparation for the product, (2) justification of the name, including a signed statement by Doctors Sturgis and Isaacs concerning the discovery of the use of stomach tissues in the treatment of pernicious anemia, and (3) presentation of adequate clinical evidence for the efficacy of the product in the treatment of pernicious anemia.—*Journal of the American Medical Association*, September 13, 1930, p. 797.

The Management of Opium Addiction.—Many of the so-called specific cures have been given fair trial by critically minded observers, but the results have been consistently unconvincing. This applies to rationally conceived proposals as well as to exploited products like "Narcosan" or the alleged secret Kahle treatment discussed in the German medical press. The conclusion of a British reviewer seems to be justified that it is now realized more thoroughly than ever before that the major problem is not to free the addict from his drug, but to keep him free. Morphin addiction is not characterized by physical deterioration or impairment of physical fitness. Herein lies the hope that rehabilitation by any process may be satisfactory so far as the physiologic functions are

(Continued on Page 30)



An Important Announcement

We wish to announce that the Wappler Electric Company and the American X-Ray Corporation have been merged into the Westinghouse X-Ray Company, Inc., and that we are official agents for this company throughout the states of California, Nevada, and Arizona. We also wish to make it plain that all equipment under either the Wappler or the American Label, in this territory, purchased from any agent, prior to the merger . . . or from us in the future, will be serviced by us cheerfully and promptly. Therefore, please feel at liberty to phone or write us when in need of such service, even if we have not directly contacted you. We thank you for past patronage, and as agents for the WEST-INGHOUSE X-Ray Company, can assure you of even greater service and a more extensive line of Modern X-Ray products.

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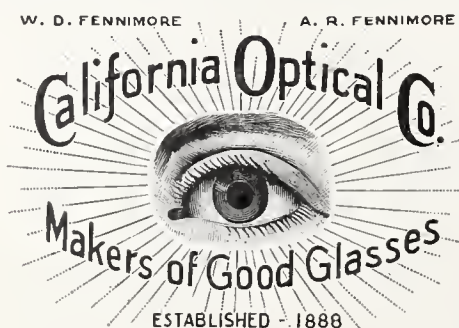
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TRUTH ABOUT MEDICINES

(Continued from Page 28)

concerned. The mental and psychologic problems are not yet so easily disposed of. Relapse is common to all methods of treatment, and the question as to whether the withdrawal of the alkaloid should be gradual rather than abrupt may be discussed in the light of many reports. British opinion, with a few notable exceptions, seems to be in favor of a reduction treatment as the routine method of cure.—*Journal of the American Medical Association*, September 13, 1930, p. 801.

Polyglandol and Polyglandine.—The Rand-McNally Building in Chicago has two entrances: one at 538 South Clark Street and the other at 529 South La Salle Street. For some years there have been exploited from a suite of offices in this building some crude mail-order quackeries, carried on under a variety of firm names and with a still greater variety of nostrums. While there probably are several persons connected with the business, the most important factor seems to be one Frank H. Ellenbaum. Some of the names used by Ellenbaum and his associates are: Science Publishing Company, Inc., 538 South Clark Street; Advisory Service Bureau, 538 South Clark Street; Medical Aid Bureau, 529 South La Salle Street; Home Health Bureau, 538 South Clark Street; George R. Douglass, 527 South La Salle Street; Medico-Electro Company, 536 South Clark Street. The "Advisory Service Bureau" puts out two aphrodisiacs, Polyglandol and Polyglandine for men and women, respectively. The American Medical Association Chemical Laboratory examined these nostrums because a report was received that a bull terrier who devoured a package of Polyglandol mailed to an old gentleman who had ordered it, had died of arsenic poisoning. The laboratory did not find the Polyglandol now marketed to contain appreciable amounts

(Continued on Page 37)

ADAPTATION OF BIFOCALS TO VOCATIONAL USE

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It would amount to an absurdity to prescribe small segment bifocals to desk workers for continuous daily use as it would be to supply a farmer, who spends his time out-of-doors, with very large segments which can be used successfully only for close vision. Between these two extremes is a large group of patients each with his own particular needs—and, in a measure, different from any other person.

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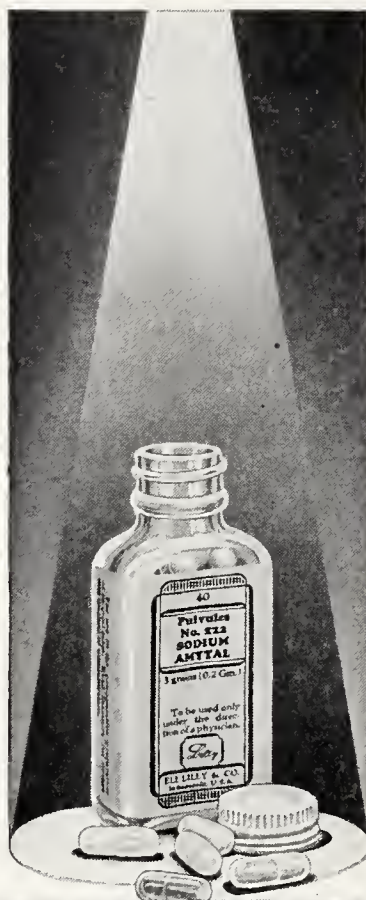
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DERMATOLOGIC THERAPEUTICS—BASIC PRINCIPLES AND TECHNIQUE*

By MOSES SCHOLTZ, M. D.
Los Angeles

DISCUSSION by Stuart C. Way, M.D., San Francisco;
George D. Culver, M.D., San Francisco.

THE clinical control of skin diseases is notoriously a weak spot in the therapeutic armor of the general practitioner. Yet skin disorders constitute a large item in general practice. These therapeutic difficulties result not so much from lack of special training and equipment as from lack of knowledge of the basic principles and rationale of dermatologic therapeutics. It is the purpose of this paper to present a short résumé of these principles and to illustrate their practical application.

ETIOLOGIC VERSUS SYMPTOMATIC TREATMENT

It is a truism that the first step in successful therapeutics is correct diagnosis. A correct diagnosis does not mean necessarily correct treatment. There are a number of dermatoses, diagnosis of which is simple but treatment is uncertain and difficult, such, for instance, as psoriasis, pemphigus, and various disturbances of pigmentation. In cases where diagnosis is unavailable at once, treatment is bound to be symptomatic. The most common subjective symptom in numerous dermatoses is itching, hence antipruritic local applications are frequently required.

Whenever etiologic or specific treatment is unavailable the *best indicator and guide of the symptomatic local medication is offered by the gross pathology presented by the skin lesions*. Thus, if the skin lesions present an acute inflammatory condition the proper application would be a cooling and protective ointment, such as plain Lassar's paste, zinc ointment, boric ointment, zinc oil cream or calamin lotion in dry dermatoses, and Burrow's solution in weeping exudative eruptions.

If a dermatosis presents an exudation of purulent secretion, antiseptic lotions containing sulphur, mercurials, or alum acetate are indicated. If a skin lesion presents an infiltrated eczematoid surface, absorptive and stimulating ointments containing salicylic acid, and particularly tar, are indicated.

Should lesions present a glandular and follicular involvement of an inflammatory or infectious

nature, sulphur applications are useful. Accumulated horny deposits and scales call for peeling applications such as concentrated salicylic acid ointments.

Granulomatous lesions of apparently mycotic or bacterial nature call for local or systemic administration of iodine.

Skin lesions presenting verrucous or tumorlike masses, unless proved to be of mycotic or bacterial origin, call for a destruction by electrocautery surgery or actinic radiation.

These general indications will help to therapeutic orientation in cases without early diagnosis.

The gross pathology of skin lesions is also our best criterion of the therapeutic efficacy of local applications, as the positive or negative effects of local medication find their first reflection in the increase or decrease of the superficial manifestations of the gross pathology of the skin lesions.

DYNAMIC PRINCIPLE IN DERMATOLOGY

It is most essential for therapeutic efficiency in skin diseases to adopt a dynamic point of view of cutaneous pathology. The same holds true even to a greater extent in dermatologic diagnosis.

The old-time conception of skin diseases as separate morphologic pictures of a certain pattern and design, rigid, immutable and stationary, so persistently emphasized in atlases of skin diseases, has been one of the main sources of diagnostic and therapeutic difficulties encountered by the general profession in handling skin diseases. Diagnostically the static conception is incorrect and misleading because individual dermatoses only in a very few exceptional cases retain, throughout the whole clinical course, the same morphologic design or pattern. In fact, the pictorial design of dermatoses continually changes under influence of various local and systemic factors, yet dermatoses retain some or all of their differential morphologic diagnostic traits sufficient for their identification. Hence, for diagnostic purposes it is not necessary nor desirable to retain in memory a pictorial design of a typical case of a dermatosis, but it is sufficient merely to know the syndrome of morphologic details which characterize it. In other words, *dermatologic diagnosis can be made with a much greater degree of certainty on the presence or absence of several or all morphologic traits peculiar to a certain dermatosis than on the general pictorial design and impression of this dermatosis*. Therapeutically the dynamic principle is of equal importance. Because of the ever present possibility of changes

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in the gross appearance of the skin lesions and the endless variety of these changes there cannot be a standard therapeutic formula for each case.

REGIONAL ANATOMIC DIFFERENCES OF THE SKIN

Among the factors contributing to variability of the cutaneous lesions should be mentioned the difference in the texture of skin in various anatomic regions. If overlooked or ignored, this factor is a common source of therapeutic errors and failures. Compare, for instance, the thick skin on the palms, soles or back and fine skin on the face, female breast, interdigital spaces, and genitocrural region. Also compare the thick, coarse, resistant skin of a dark-complexioned male adult and the thin tender skin of a young blond female or the still more vulnerable skin of a young child or infant. The difference in the tolerance and resistance of these types of skin is tremendous and should never be forgotten in the evaluation and selection of local medication.

The presence of hair calls for a different therapeutic technique than glabrous skin. Thus, on the scalp heavy ointments with heavy base, such as zinc ointment, Lassar paste, or lanolin, should not be used, but only soft bases such as petrolatum or white boric ointment (U. S. P., 9th edition) or, still better, oily and liquid applications.

PECULIARITIES OF CUTANEOUS PATHOLOGY

To understand fully the practical importance of the dynamic principle in clinical dermatology one must remember the inherent peculiarities of the cutaneous pathology due to the topographic location of the skin in human anatomy.

The skin is the only surface organ in the human body, occupying, in comparison with other organs, an enormous area supplied with a highly complex and rich network of blood vessels and nerve endings.

The skin is the only organ which constantly and continually is exposed to all kinds of external irritants, such as atmospheric and physical agents—air, dust, wind, sun rays—as well as to traumatic and mechanical irritants of all types, occupational or accidental. Being an important secretory organ the skin is subject to irritation by its own secretions—sweat, oil, and desquamating epidermis. It is also often subjected to that specific dermatologic insult—scratching—due to itching (the defensive skin sensory reaction equivalent to pain in visceral organs). One can readily see that the skin, the casing and external protector of the body, receives the brunt of external irritation.

This factor of traumatic exposure and vulnerability of the skin profoundly influences cutaneous pathology and sharply differentiates it from that of visceral organs. While visceral organs present ordinarily only one type of lesion, the skin has a strong tendency to develop secondary lesions which may completely disguise and overshadow the primary pathology. These secondary lesions may be manifold in type. The most common are excoriations and scratch marks. They

commonly lead to a secondary pyogenic infection of a follicular pustular type or of a diffuse impetiginous character. Just as scratching and rubbing often lead to the thickening and lichenification which is observed in many chronic eczemas.

It is obvious also that the skin offers a natural pabulum for all types of saprophytic bacteria and fungi which may cause primary or secondary infection. Finally local medication and physiotherapeutic applications often produce a secondary dermatitis which disguises and conceals the primary dermatosis.

The failure to correctly recognize the primary and the secondary skin lesions and to interpret their proper relationship is responsible for a large number of therapeutic failures. *As a rule the secondary skin lesions should be treated first.* Thus, pyogenic infection in scabies, tinea, or eczema is to be treated first, and the underlying primary dermatosis later. Also the secondary dermatitis, due to overtreatment, should be controlled first.

ATTENTION TO DETAILS

Since the inferences and deductions of dermatologic diagnosis and treatment are based essentially on the visual perception, a careful observation of morphologic details and minutiae becomes a matter of paramount importance in dermatologic diagnostic technique. For this reason an observing eye is necessary to a dermatologist. The same attention to details is of paramount importance in dermatologic therapeutics. A complete and detailed survey of the whole affected area is necessary for a proper therapeutic evaluation. Every detail of the previous treatment, diet, occupational environment, and general regimen of the patient is to be considered by the clinician. Every factor of clinical significance which may enhance or inhibit the effectiveness of local or systemic medication must be taken into consideration.

One of the common causes of therapeutic failure is inadequate attention to details. The presence of multiple skin lesions of one type, but in different stages; or of different types of lesions which require different types of local medication may be treated identically under a wrong assumption that all the lesions are one and the same condition.

Equally common is the failure to recognize the presence of secondary skin lesions superimposed on the primary dermatosis, and the administration of uniform treatment where two different types of local application are indicated.

In physiotherapeutics attention to details is still more important because of the possibility of injury of more serious and deeper character. The proper distance, proper angle of application, carefully gauged dosage of individual treatments and proper interval between the treatments, the proper protection of the parts adjacent to the radiated area, the correct thickness and material of the filter, if such is used, the dependable time clock with alarm clock attachment, the proper watching

of the patient when he or she is restless and inclined to change the position set (particularly important in the case of children)—these and many other details are to be constantly watched and considered. Directions as to the use of ointments, lotions and other medicaments, should be explicit and definite to the smallest detail on items such as the frequency of application, proper dilution, the technique of application and cleansing.

In no other matter are more offenses committed in regard to attention to details than in diet. Routine, indefinite and stereotyped dietetic advices, are a practice commonly observed; the opposite should be the rule.

It is futile and useless to accept the patient's statement that "he or she eats very little meat" or "does not like sweets." The only proper and effective way of dietetic regulation is to make a patient prepare a full and detailed list of every item of food consumed, and to check up personally the list. Patients consciously or subconsciously, but mostly through lack of medical intelligence, give most misleading and defective reports of their menu. Do not fail to check up in detail and in the most exacting manner every item of personal hygiene and every factor of home environment that may cause or aggravate the skin condition. Patients are very prone to forget about such items, and the clinician will easily miss them unless he is constantly on the lookout for them. Quite often, for instance, a patient, in his desire to help the doctor, uses some irritating disinfectant, such as lysol or formaldehyde, and fails to mention it to the doctor.

The technique of cleansing the skin before the fresh application of ointment or lotion is extremely important. This is particularly true in infectious dermatoses due to bacteria or fungi. It is surprising how many pyodermata resist an apparently correct treatment because the patient is not instructed in detail to remove the crusts from every impetiginous lesion; as a result, they apply the prescribed antiseptic ointment on top of a thick impetiginous crust which gives ample protection to the pyogenic germs underneath. On the other hand, patients often use rude force in removal of crusts, traumatize tissues, make lesions bleed and spread infection instead of checking it. The quality and technique of dressing is also of practical importance. It is an accepted custom in private practice and institutions to use surgical gauze as a dressing material in all weepy skin lesions. Nothing is more unsuitable, injurious and irritating to the inflamed, raw and macerated skin than the porous texture of surgical gauze which sticks to and indents itself deeply in the softened tissue of such skin. The least effort at separation invariably leaves a bleeding, traumatized and greatly irritated surface. Absorbent cotton oiled or moistened with some liquid application is much more acceptable. By far the best and the least irritating dressing material for bandages are smooth solid goods, such as old washed linen, muslin, cheesecloth, or plain cotton goods.

Another therapeutic atrocity commonly committed in dermatologic cases is the use of superabundant mile-long bandages, and the covering of weepy skin eruptions with heavy layers of cotton. These heavy bandages are irrational and distinctly harmful, particularly in pyogenic dermatoses, as they contribute to overheating, render lesions airproof, hamper free drainage, and interfere with cleansing. (The unnecessary waste of material is the least offense in these cases.) Nothing is more rational or more helpful in these cases than moderate exposure to the air and sun and the lightest and smallest possible protective dressing.

Minor, but important practical details of personal hygiene, such as bathing, shaving, cutting hair, are all to be carefully considered and decided in accord with the individual requirements of each case.

PRESCRIPTIONS AND FORMULAE

A relic of the old-time teaching of dermatology, but one, unfortunately, still popular with the profession, is the use of favorite prescriptions and therapeutic formulae recommended by various authorities. In actuality, those who depend for therapeutic results on these cherished formulae are commonly disappointed, to their surprise. The reason is simple. The original creator of the prescription or formula used it in a certain type of case and modified it to meet individual requirements. The imitators and compilers copy and use formulae mechanically and routinely without modification for the clinical differences of individual cases. The formulae and prescriptions can be helpful and useful only if accepted as a skeleton key, as a tentative suggestion which is to be modified and adjusted to meet the requirements of the individual case.

DIET

The therapeutic value of diet in skin diseases seems to be established in the mind of the general public. Skin patients invariably ask for a diet list of permitted and prohibited items of food. There is a good deal of empirical wisdom behind this belief. To be effective, dietetic advice has to be definite and suitable to an individual case.

Obviously, the therapeutic value of diet is demonstrated best in the systemic dermatoses due to alimentary intoxication. However, clinical dermatologic experience shows that even in dermatoses caused by external irritants and bacterial or mycotic infection, as well as in systemic dermatoses of nonalimentary origin, dietetic restriction of the general amount of food, and particularly of sugars and proteins, is very helpful. Thus, in all pyodermic and mycotic dermatoses sharp reduction of sugars is indicated. In acute generalized eczemas semistarvation in the form of a fruit and vegetable diet is indicated. In anaphylactic dermatoses, such as eczemas and urticarias, the offending protein must be identified and eliminated. Skin food tests are more apt to be helpful in contact allergic than in food allergic cases. In food allergy it is a slower but safer procedure to reduce diet to the minimum number of food items

proved empirically harmless to the patient and to add one item of food at a time. This technique gives the surest method to identify the offending allergic proteid and to build up the patient's diet.

In systemic dermatoses due to alimentary or metabolic toxemia, such as eczemas, psoriasis, lichen planus, dermatitis herpetiformis, urticaria, erythema multiforme, sharp restriction of proteids is imperative.

Seborrheic and exudative eczemas call for a restriction in fats, sugars, and starches.

Speaking generally, a sharp reversal in diet from a proteid and sugar-rich putrefactive and fermentative diet to a lean one, consisting chiefly of fruit and vegetables, is invariably helpful. In this regard the use of acidophilus milk and lactodextrin should be mentioned.

Skin patients are, as a rule, eager to submit to dietetic restrictions, but rightly they insist on definite and specific directions and instructions.

GENERAL REGIMEN

The general regimen is of importance in all systemic dermatoses. The majority of skin cases can be handled in an ambulatory way, without confinement to the house, still less to bed. Only in exceptional cases with lesions of universal distribution, in cases suffering from extreme discomfort, with elevation of temperature, or where frequent change of dressing is necessary, is rest in bed advisable or even imperative.

Generally speaking, rest in bed is rather contraindicated in skin diseases because it is conducive to overheating the patient and making him uncomfortable.

Closely connected with this is the problem of proper covering and dressing of skin patients. There is a general tendency to overdress and to overheat skin patients.

The dressing or bandage covering the affected skin area has to be smooth, light, and as cooling as possible. For this reason wool, flannel, or heavy cotton cloth should be avoided and old linen, muslin, cheesecloth, or smooth cotton goods are preferable dressing material. All external atmospheric irritating factors, such as wind, dust, hot sun rays, are to be guarded against. The same holds true in regard to plants, flowers, and a host of occupational and environmental irritants.

Every detail of occupational and home environment is to be searched not only from the point of view of possible causal relationship, but because of its possible irritating effect on the existing dermatosis, irrespective of the etiology.

INTERNAL MEDICATION

Internal medication has a limited yet very definite and important field of usefulness in dermatologic therapeutics. A few drugs of particular usefulness and serviceability can be mentioned.

Calcium lactate, an extremely mild and well-tolerated drug, in doses of five to fifteen grains is useful in a large number of acute and exudative dermatoses because of its tonic hematogenic effects.

Arsenic, age-long reputed skin remedy, has been used indiscriminately in skin diseases of all types. I prefer to use Fowler's solution in gradually ascending doses, one to five drops, three times a day, increasing one drop every week, holding at maximum of five drops for several weeks and just as slowly going down. At present, in view of its specific, definitely stimulating and irritating effect on the skin, its clinical indications are strictly limited. Arsenic should never be used in acute and highly inflammatory dermatoses. It also should not be used in dermatoses showing hyperkeratosis. It is very useful in chronic dermatoses associated with general and nervous debility, such as lichen planus, psoriasis, dermatotic herpetiformis and pompholyx. It is but seldom used now in eczemas.

An extremely valuable drug somewhat recently introduced is sodium thiosulphate, given orally or intravenously. Besides being a specific remedy in heavy metal intoxications, it apparently possesses a general detoxicating effect. It has proved to be useful in various systemic alimentary and metabolic toxic dermatoses. Its therapeutic efficiency is due to its content of sulphur, which shares with arsenic the distinction of being one of the oldest skin remedies.

Gold sodium thiosulphate is another splendid drug recently introduced in dermatologic therapeutics. It has proved to be well nigh specific in that hitherto intractable disease, lupus erythematosus. It is usually given intravenously in gradually ascending doses of 20 to 100 milligrams, but it can also be given safely subcutaneously and intramuscularly. It has proved helpful also in mild cases of psoriasis of the small patchy type, particularly in young girls, in combination with ultra-violet, quartz lamp, or carbon arc radiation. In these cases it should be given weekly in small doses of 15 to 25 milligrams. Lately gold thiosulphate was reported of service in vitiligo, heretofore a totally intractable condition.

Another valuable recent addition, ephedrin sulphate, offers a symptomatic remedy in urticarial conditions.

The intravenous injections of sodium bromid recently proved of value in controlling distressing pruritus in chronic or subacute systemic dermatoses, particularly in neuropathic individuals. In conclusion, I wish to stress the great value of alkaline salts and purgatives in systemic inflammatory dermatoses. My favorites are sodium phosphate effervescent in mild cases and imported Carlsbad sprudel salts, especially in cases of suspected liver disorder, functional or organic.

PHYSIOTHERAPY

Of all therapeutic resources available to dermatologists, physiotherapy is the most effective and powerful. It can be truly said that physiotherapy has revolutionized dermatologic therapeutics.

Ultra-violet light, quartz lamp, or carbon arc possess dermatologically the following effects: (1) bactericidal; (2) antipruritic; (3) stimulative regenerative; and (4) superficially destruc-

tive peeling. On the other hand, x-ray and radium in small and medium doses exert a stimulative alternative and deep absorptive effect, and large doses are lethal to rapidly growing tissues.

Hence ultra-violet light is indicated in all superficial, itchy, infectious, bacterial or mycotic, local or systemic dermatoses. X-ray should be used only in deeper, infiltrating, inflammatory dermatoses, infectious granulomata, bacterial or mycotic, and in skin malignancy.

Since ultra-violet light is practically foolproof (the maximum damage is merely a superficial blistering, spontaneously healing without scars or any injurious sequelae), and x-ray is capable of grave and irreparable injury, it should be a clinical axiom that x-ray should be reserved only for deeper and resistant lesions, as a means of the last resort, never as the first choice. Neither x-ray nor ultra-violet light should be used as the sole therapeutic agency. They should be supplemented by appropriate local and systemic therapeutics. In fact no clinician should use x-ray in skin diseases unless he is also capable and competent to use other dermatologic therapeutic methods.

A thorough grounding in diagnostic and therapeutic dermatologic technique is a much more important qualification for a clinician who uses x-ray in skin cases than the mere technical knowledge of operating an x-ray machine, which can be mastered by a technician or a nurse.

A principle that should be indelibly impressed upon the mind of a clinician using x-ray in skin diseases, is that the therapeutic skill of a clinician is measured by the smallest amount of x-ray used in obtaining desirable therapeutic effect.

Both in x-ray as well as in ultra-violet light, overtreatment is the most common error seen.

Briefly speaking, small and medium doses of one-eighth to one-fourth of an erythema or skin unit in x-ray are sufficient, effective and most rational in the overwhelming majority of dermatoses. Only in malignancy and deep infiltrating skin granulomata are massive or erythema x-ray doses indicated. At the present time dermatologic experience has well established the thorough clinical reliability and effectiveness of MacKee's indirect method of measuring x-ray dosage. X-ray overtreatment, so often observed in the treatment of skin diseases, refers not only to the quantity of ray expressed in amperage, but also to the quality of ray as well, a much higher voltage being commonly used than is necessary for therapeutic effect or compatible with safety to the skin. One hundred kilovolts or more, corresponding to six inches spark gap or over, is often used in superficial dermatoses. X-rays of such penetration are superfluous and actually not so effective, as a considerable amount of them go through the skin without being absorbed by it. Histopathologic investigations have shown that x-ray voltage, even of two to three inches spark gap or fifty to seventy kilovolts, may produce degenerative changes down through all the layers of epidermis and corium.

It is obvious, then, that a spark gap of four to five inches (sixty to eighty kilovolts) is amply sufficient for the majority of dermatologic conditions and that x-rays of six inches (one hundred kilovolts) or more spark gap should be reserved only for dermatosis of a deep infiltrating type. Likewise filtration in superficial dermatoses is superfluous and inadvisable unless a very thin filter of one-tenth to one-fourth millimeter of aluminum is used.

Similarly in the field of ultra-violet light there is a tendency to use erythema and blistering doses more often than is necessary. Persistent emphasis, laid by commercial circulars flooding the profession by manufacturers of physiotherapeutic appliances, has hypnotized the average practitioner into a belief that nothing short of an erythema or blistering dose is sufficient for therapeutic results.

In actuality most of the major therapeutic effects obtained through ultra-violet light rays, such as antipruritic, bactericidal and stimulating regenerative, are obtained by small fractional or medium doses way below the erythema stage. The superficially destructive and peeling effect of the erythema dose is desired only in very small minority of dermatoses such as chronic circumscribed dry scaly mycotic dermatoses, acne, psoriasis, alopecia areata, and some other selected cases.

Hence the fractional and medium dosage of ultra-violet ray is the most serviceable and desirable in the overwhelming majority of clinical dermatologic material. It is to be preferred in all acute and subacute inflammatory dermatoses comprising an enormous clinical group of eczemas, seborrheic conditions, mycotic and pyogenic dermatoses, various types of pruritus, lichens, etc.

ELECTRODESICCATION

One of the most effective weapons recently introduced in dermatologic armamentarium is electrodesiccation, *i. e.*, the unipolar variety of surgical diathermy. Electrodesiccation is a derivative of the old-time high frequency spark brought to a high degree of mechanical efficiency.

The basic difference between the two is that electrodesiccation cauterizes and destroys tissues, not through sparking, which is a very crude and painful method, but through the heat produced in the tissues themselves.

Electrodesiccation can be truly called the best surgical dermatologic tool.

A great variety of small benign tumors and formations on the skin, such as warts, moles, benign cystic tumors, etc., can be removed quickly, aseptically and thoroughly with or without local anesthetic. One important advantage of electrodesiccation over surgery from a dermatologic point of view is the remarkable capacity of electrodesiccation of localizing its destructive effect to the smallest possible areas and sparing the adjacent tissues. This is very essential for good cosmetic results in removing small benign tumors from the face near the eyes, nose, or the mouth.

One of the most important fields of its clinical application is the destruction of skin carcinomas preliminary to x-ray or radium application. This procedure combines the advantages of quick destruction offered by surgery with the additional safety offered by prophylactic radiation.

The electrodesiccation wound heals possibly somewhat slower than the surgical, but it requires much less after-care, gives a practical assurance against an infection, and cosmetically gives most excellent results.

CARBON DIOXID SNOW

Freezing with carbon dioxid snow, the very antithesis of the destruction of electrodesiccation through heat, has lost a good deal of its popularity since the introduction of electrodesiccation in practice.

Freezing still can be used as a method of choice in pigmented and vascular nevi in which it gives splendid cosmetic results. Until the introduction of gold thiosulphate in the treatment of lupus erythematosus, freezing with snow was very popular. It is superfluous at present and should not be used until after a thorough trial of gold injections. Small superficial keloids can be leveled down occasionally, but radium gives much superior results and is a method of choice. Freezing is not effective in hard seed warts.

DERMATOLOGIC PROGNOSIS

In concluding this necessarily brief and sketchy presentation of modern dermatologic therapeutic technique a word in regard to prognosis in skin diseases seems to be appropriate.

As emphasized above, the prognosis in skin diseases has improved enormously in the last two decades.

Speaking generally, the therapeutic strength of a trained dermatologist lies in his capacity for correct recognition and correct interpretation of skin lesions and his ability, with the aid of modern equipment, to produce involution of these lesions.

Hence the best and quickest results can be expected in dermatoses of a strictly local character, parasitic, mycotic and bacterial skin infestations and dermatoses due to external irritants.

The weakness of the dermatologist, shared by his confrères of internal medicine, is the inability to detect and control the underlying etiologic factors in many dermatoses. These unsolved clinical problems offer a fertile field for coöperation between the dermatologist and the internist.

1930 Wilshire Boulevard.

DISCUSSION

STUART C. WAY, M. D. (490 Post Street, San Francisco).—A paper such as the one just given us by Doctor Scholtz should do much to arouse the general practitioner to the fact that recent advances have enabled the dermatologist to offer his pruritic patient more than just a palliative scratch.

The subject-matter under discussion is unlimited, and many of the valuable suggestions offered are clearly the result of years of careful application wherein avoidable therapeutic errors were profitably remembered.

Many therapeutic problems have been thoughtfully enumerated and ably discussed. Emphasis has been justly given to the value of undertreatment rather than overtreatment, for individual susceptibility is an ever present problem and one which increases proportionately with the age of the patient. A recent article in *CALIFORNIA AND WESTERN MEDICINE* (October 1929) by Alderson discusses the growing evil of overtreatment, and deserves very thoughtful consideration.

Systemic diseases with cutaneous manifestations should be treated internally as well as externally. Where diet plays a causative part, written diet lists are usually followed where verbal ones are either forgotten or ignored. Special caution is urged against the improper and careless use of such drugs as ammoniated mercury, sulphur, and tar or their compounds which are frequently the cause of a dermatitis venenata.

Most dermatologists are in accord with the statement that a clinician should not use x-rays or other physical agents in skin diseases unless he is also capable and competent to use other therapeutic methods with complete understanding. Too many technicians are treating cases to the detriment of the patient as well as the referring physician. How many of them have a proper understanding of the histopathology of the skin lesions undergoing treatment and of the tissue reactions produced by the various drugs used?

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GEORGE D. CULVER, M. D. (450 Sutter Street, San Francisco).—Doctor Scholtz has presented a difficult subject briefly and concisely, covering well a great deal of ground. Perhaps next to the specialty of internal medicine that of dermatology is therapeutically most complicated, and not easy to handle in one short lecture.

The reader should be interested in his remarks on inadequate attention to detail. He might have enlarged upon this greatly had there been space to do so. It is not difficult to cite instances to prove the point. In treating impetigo, for example, there may be failure even with the best of remedies improperly used, whereas the simple expedient of proper attention to detail would save the day. The salve might be just the proper one, and yet if it is not carefully applied and gently but well massaged into the affected area it may do little or no good. Then too it may be readily forced away by the serous secretion. By frequently wiping it off and as frequently repeating the application, it will accomplish the result desired. The patient may be told what to do and yet fail to carry out directions properly unless impressed by a careful demonstration.

All know what wonders can be accomplished by bandaging a leg with a flannel bandage in the treatment of chronic leg ulcers. The bandage must be of the proper sort, of the correct width and of sufficient length, and it must be correctly applied. The patient has to be shown. Teaching a patient how to carry on is a slow tedious process, but it so often means the difference between failure and success.

I have reached the conclusion that we as dermatologists have accepted the thought that internal medication has only a limited use in dermatologic therapeutics. Perhaps we have been in error in this respect. I think we have. Doctor Scholtz mentions the specifics and semispecifics, which are few in number, but this same condition holds true throughout the whole of the practice of medicine.

Such a great number of skin manifestations are due to or influenced by internal derangements or affected by constitutional conditions that symptomatic treatment becomes necessary and important. To properly manage this phase of a dermatological practice requires the most careful use of many of the medicaments the internist finds of value. Each patient presents an individual problem. One of the greatest benefits the dermatologist can give to his patient is the treatment, whether medicinal or dietary, or through general advice as to routine of living, that will aid in perfecting the skin and raising its resistance to the point of insuring a greater security against recurrence or the development of similar disturbances.

THE SPECIFIC RADIOSENSITIVENESS OF LYMPHOCYTES—ITS SIGNIFICANCE IN RADIOTHERAPY*

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THE specific radiosensitiveness of different varieties of cells has been so thoroughly tested and proved by innumerable experiments on animals that it deserves to be recognized as a law. And yet, if we may judge by present-day writings, the existence of such a law and of the experimental grounds on which it firmly rests is not so well known as one would expect it to be. Opinions are given daily, and so-called scientific contributions are prepared which ignore the fact as well as its medical implications. This is no doubt due to failure to keep abreast of the large number of experiments in this field of medicine and to the tendency of many writers to adopt too readily and to reproduce the plausible but unsound views of others without critical analysis. As an example of this tendency I should like to submit the case of the lymphocyte, which, of all the cells in the body, is by far the most sensitive to irradiation. The fact itself is well known, but its therapeutic implications are not commonly realized. Nowhere in the field of radiotherapy can a more instructive example of the specific sensitiveness of cells be found.

THE LYMPHOCYTES AND IRRADIATION

For many years a multitude of inflammatory disorders have been subjected to roentgen and radium rays with more or less effect, but the mechanism of the action of the rays is still a subject for debate, probably because many radiologists are not so familiar as they might be with the experimental background of radiotherapy. Heineke (1903-1905) was one of the first to make a breach in the veil of obscurity which, until that time, had surrounded the action of irradiation on living cells. The most important result of his experiments on a large number of white mice, rats, guinea pigs, rabbits, and dogs was to bring to light the exceptional sensitiveness of lymphocytes to roentgen rays and radium. He found that, when the entire body of animals of different species was exposed to large doses of one or the other form of radiant energy, the animals invariably died after an interval which varied according to the dose of rays and the size and age of the animals. But regardless of the ability of the animals to tolerate irradiation, he observed at necropsy that, although most of the organs were free from perceptible abnormality, the spleen, mesenteric nodes and other lymph nodes, and intestinal lymph follicles showed marked destruction of lymphocytes, and the degree of cellular disintegration varied according to the dose of

rays and the interval between irradiation and microscopic examination. As the number of intact lymphocytes diminished the stroma became more and more prominent. The lymphocytic degeneration in the spleen and lymph nodes was often so great that most of the malpighian corpuscles or lymphoid follicles disappeared as such and could be recognized only by the blood vessels and by the concentric arrangement of the stroma of these structures. The destruction of lymphocytes was found to begin about two hours after irradiation and to be characterized by disorganization and fragmentation of the nuclear chromatin of the cells, scattering of the fragments of chromatin between the remaining intact cells and in the spaces of the reticular stroma, where the fragments gathered into clumps or balls. The result was almost complete destruction of the lymphoid tissue in about twenty-four hours, and this was accompanied and followed by progressive reduction in volume or atrophy of the affected structures. Then the clumps or balls of degenerate chromatin were gradually taken up by some of the reticular cells, which thus assumed a phagocytic property and swelled as the amount of ingested chromatin debris increased. The same changes were observed in the spleen, mesenteric lymph nodes, solitary follicles of the intestine, in the lymphoid tissue of the vermiform appendix, and even in the bone marrow. The pathologic changes were greatest in the germinal center of the lymphoid follicles, whence they extended toward the periphery.

The phagocytic disposal of the degenerate nuclear chromatin continued until the lymphocytes in the follicles were largely destroyed, but a small percentage of these cells appeared to resist the action of the rays. After a number of hours the phagocytic reticular cells themselves began to disappear; the chromatin debris ingested by the phagocytes appeared to undergo intracellular digestion, because the number and size of the ingested fragments diminished steadily. All that remained after the phagocytes had disappeared was the connective tissue framework, the blood vessels, and a number of round cells with a bright nucleus. Soon after the beginning of lymphocytic disintegration, cells three or four times larger than lymphocytes, with a large, eosinophilic body of protoplasm and a large, oval or round, vesicle-shaped nucleus appeared in the germinal center. As the destruction of lymphocytes progressed these epithelioid cells formed large clumps, gradually assumed a concentric arrangement and formed structures suggesting epithelial pearls. This process continued for several days, when the concentric, epithelioid structures diminished in size, and the appearance of the cells gradually approximated that of ordinary connective tissue cells, and finally disappeared. Two or three days after exposure to roentgen rays, degenerative alteration of other cells, notably the polymorphonuclear leukocytes and eosinophils, also became perceptible, and many of these cells disappeared

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from the splenic pulp and bone marrow. The degree of lymphocytic destruction appeared proportional to the length of exposure to the rays, and Heineke attributed the difference in degree of the tissue changes noted to variation in the focal-skin distance and in the thickness of the intervening tissues. In other animals irradiated for varying periods and examined from ten days to three weeks later, more or less regeneration of the lymphoid tissue was observed.

The action of irradiation on the lymphocytes and on lymphoid tissues in general has been fully confirmed by many subsequent experimenters, among whom may be mentioned Warthin (1906), Krause and Ziegler (1906-1907), Fromme (1917), Hall and Whipple (1919), Hartman (1920), Warren and Whipple (1922), Jolly (1924), Tsuzuki (1926), and Piepenborn (1929). Similar effects were obtained with radium by London (1903), Heineke (1904), London (1905), Thies (1905), and Lazarus-Barlow (1922). Warthin's description of the effect of roentgen rays on the lymphoid structures corroborates the observations of Heineke, except that, by examining the tissues soon after irradiation, Warthin found unmistakable evidence of the disintegration of lymphocytes within fifteen minutes after exposure of the animals to the rays, and the cellular degeneration continued for several days. Rudberg, Aubertin and Bordet, Arella, Regaud and Crémieu, and many others, have likewise shown that roentgen and radium rays exert precisely the same influence on the small round cells of the thymus gland, and their work strongly supports Hammar's conclusion that the small cells of the thymus gland are indeed lymphocytes. Others, notably Senn (1903), Heineke (1903, 1905), Guilloz and Spillmann (1904), Aubertin and Beaujard (1904, 1905, 1908), Brown (1904), Bryant and Crane (1904), Capps and Smith (1904), Helber and Linser (1905), Russ (1919, 1921), Leitch (1921), Aubertin and Delamarre (1908), Benjamin, von Reuss, Sluka and Schwartz (1906), and Taylor, Witherbee and Murphy (1919), have proved that the lymphocytes in the circulating blood are equally sensitive to irradiation and that they also are destroyed in large numbers by exposure to roentgen or radium rays.

APPLICATION OF FACTS TO CLINICAL RADIOTHERAPY

How may these facts be applied to clinical radiotherapy, and how closely does clinical radiotherapy correspond to the experimental data? It has long been known that many acute and chronic, suppurative or nonsuppurative, inflammatory conditions are readily amenable to irradiation, and in some of these conditions roentgen-ray or radium treatment has been found to be the therapeutic method of choice. As examples, I might mention furuncle, carbuncle, delayed resolution in pneumonia, trachoma, erysipelas, and parotitis. Many other pathologic lesions of inflammatory character might be added to the list, but those

mentioned are sufficient to bring out the relation between the effect of irradiation on such lesions and the specific sensitiveness of lymphocytes.

FURUNCLE AND CARBUNCLE

Coyle (1906), Dunham (1916), Carp (1928), and others, have established the fact that acute inflammation of this kind, especially when treated during the stage of maximal leukocytic infiltration, which is to say before the stage of frank suppuration, often responds remarkably well to irradiation. In many cases the pain disappears within a few hours, and the redness and swelling subside rapidly after suitable exposure to irradiation. Coyle reported three cases of carbuncle in which exposure to roentgen rays was followed almost immediately by relief from pain and in which the lesion healed in a few days without suppuration. Dunham (1916), at the suggestion of Wainwright, treated sixty-seven carbuncles, giving a full therapeutic dose of rays generated at a potential equivalent to a spark-gap of nine inches, filtered through three millimeters of aluminium, at a focal-skin distance of eight inches, for thirty-five milliamperes minutes (more than ten Kienböck units). Pain sometimes increased during the first twelve hours, but ceased within forty-eight hours. The lesions then softened as the result of suppuration and drainage through a small incision, or suppuration did not occur. The results were so satisfactory that Dunham was moved to state that "nothing in all radiotherapy gives such positive and uniformly perfect results as the treatment of a carbuncle." Carp (1927) successfully treated with roentgen rays twelve patients suffering from nondiabetic carbuncle. Nine other patients apparently had to be operated on, and one patient died. Inasmuch as several methods of treatment had been used in many cases, Carp was not certain to which method the result should be credited. He concluded that radical operation is preferable in large carbuncles, whether the patient is diabetic or nondiabetic, but that in other carbuncles treatment by roentgen ray yields good results. The treatment is not uniformly successful, however, and this is probably due to factors within the lesions; these will be considered later. Treatment during the suppurative stage is less successful and its effect usually is less striking, but even then it is often of distinct value.

PNEUMONIA

Musser and Edsall (1905), impressed by the remarkable metabolic changes they had found in patients with leukemia treated with roentgen rays, suggested the possible advantage of such treatment for unresolved pneumonia. They reported one case in which irradiation was followed by rapid resolution and improvement, but stressed the point that such an effect could not be expected after organization had occurred. Edsall and Pemberton (1906), described three additional cases of delayed pneumonic resolution, in which moderate irradiation of the lungs promptly initi-

ated resolution, with correspondingly striking subsidence of the clinical manifestations. They held that the treatment could not be effective after organization of the pneumonic exudate, and they considered active, continued inflammation, with fever and toxemia, and tuberculosis as contraindications. At that time ferments occupied an excessively prominent place in biologic and medical thought, and Edsall and Pemberton expressed the idea that the rays act on the pneumonic process by accelerating the action of ferments and stimulating autolysis, but they admitted the "widespread and excited tendency to give ferments a more important place than is their due." For some reason the influence of roentgen rays on delayed resolution in pneumonia, revealed by such well-known clinicians, remained unutilized for ten years, when Quimby and Quimby (1916) confirmed the experience of Musser, Edsall, and Pemberton in twelve cases, four of which were described in detail. Although resolution had been delayed for some time, it progressed rapidly after roentgen irradiation of the lungs, and the patients promptly recovered. So gratifying were the results that Quimby and Quimby were prompted to state that "no pathologic process in the body responds quicker to an x-ray exposure than the nonresolution following pneumonia," and they attributed this effect to destruction of leukocytes infiltrating the lungs. Krost (1925) supplemented the foregoing reports by adding twelve other cases, in ten of which a single exposure of the thorax to roentgen rays of rather long wavelength for five minutes led to improvement in the symptoms and rapid recovery. Krost expressed the belief that irradiation stimulated phagocytosis. Additional evidence of the resolving action of roentgen rays on pneumonic exudates was furnished by Torrey (1927) and others.

Heidenhain (1927) claimed that small doses of roentgen rays also had a favorable influence on postoperative pneumonia and recorded forty-eight cases, in more than 80 per cent of which the course of the disease was said to have been shortened. He obtained equally favorable results in more than half of twenty-four cases of pneumonia unrelated to surgical intervention. Other favorable testimony was furnished by Heidenhain and Fried (1924), Kaess (1925), Fried (1926), Holzkecht (1926), Gadjanski (1927), Glas (1927), Fried (1928), Holst (1929), Merritt and McPeak (1930), and others. Hell (1929) was not so successful. Success attended treatment in only three of twenty-four cases, but the data furnished are insufficient to explain failure in the other cases.

As has been mentioned, Musser and Edsall, and Edsall and Pemberton thought the action of roentgen rays on delayed resolution was to stimulate autolysis by increasing the activity of the ferments. Quimby and Quimby ascribed the influence of irradiation on resolution to destruction of the infiltrating leukocytes. Krost held that the rays stimulated phagocytosis. These various interpretations appear more divergent than they

really are. Although proof is lacking, it seems probable that the activation in ferment action and autolysis invoked by Musser, Edsall, and Pemberton, the destruction of infiltrating leukocytes mentioned by Quimby and Quimby, and by Pordo, and the increase in phagocytosis referred to by Krost, represent only different phases of the same effect. Experimental evidence of the great susceptibility of the leukocytes, especially the lymphocytes, to irradiation has been presented. The destruction of large numbers of such cells soon after moderate irradiation and the phagocytosis of the nuclear debris of the destroyed cells has been described. This undoubtedly explains the increase in phagocytosis and autolysis, and the failure of irradiation after the onset of organization.

TRACHOMA

Mayou (1902) called attention to the value of radiotherapy in trachoma by reporting the instance of a girl, aged fourteen years, with bilateral trachoma and thick, fleshy pannus in both eyes; the left eye was completely cured after twenty-two three-minute exposures to soft roentgen rays. The right eye, treated with a solution of copper sulphate, improved much less in the same time, but eight exposures to roentgen rays completed the cure of this eye also. Mayou (1903) recorded the cases of fifteen other patients treated with roentgen rays; nine were influenced favorably, and five of these were permanently cured. The others had recurrences or were still under treatment. Mayou thought the effect on the lesions was due to leukocytosis induced by the rays. Stephenson and Walsh (1903) also described two cases of trachoma cured by roentgen-ray treatment. Additional evidence of the potency of irradiation in trachoma was furnished by Bettremieux (1903), Cassidy and Rayne (1903), Geysler (1903-1904), Goldzieher (1904), Pordo (1904), Newcomet and Krall (1904), Vasyutinski (1904), Horniker and Romanin (1905), Stargardt (1905), Thielemann (1905), Kassabian (1906), Coleman (1907), Stargardt (1912), Jacqueau, Lemoine, and Arcelin (1920), Rollet and Bussy (1920), Cochard (1921), Meldolesi and Sabbadini (1923), Meldolesi (1924), Lane (1924), Sabbadini (1926), and others. In some of the cases in which the condition was reported as cured the trachomatous manifestations recurred, but many other patients remained free from disease, either permanently or for a long time. Cochard (1921) was able to cure two patients permanently and to bring about marked improvement of six others, but some of these had recurrences later. Resumption of treatment, however, was again followed by rapid decrease and disappearance of the granules, and this led Cochard to the probably sound conclusion that the initial treatment had not been sufficiently thorough or had not been continued long enough. In only two of the eleven cases included in his thesis did the treatment fail to benefit the patient, and in these the disease had been of long standing and was associated with advanced sclerosis.

Harman (1905) apparently was the only observer to report failure to influence trachoma by roentgen rays. It is permissible to surmise, therefore, that his technique may have been faulty. Terrien (1919) stated that irradiation caused the lymphoid hyperplasia to retrogress and the granulations to disappear, but that recurrence was the rule. Derby (1924) also wrote disparagingly of the value of roentgen-ray treatment in trachoma; his opinion was not based on personal experience, but on a cursory and incomplete review of the literature. It is impossible to read the communications of Thielemann (1905), Cochard (1921), and Sabbadini (1926), to mention only these three, without being convinced that roentgen rays have a real and substantial effect on the lesions of trachoma. This effect appears to be greatest in the early stages of the granular form of the disease; irradiation has little, if any, effect when the inflammation has been present a long time and the lymphoid granulations have been replaced by connective tissue sclerosis.

Beck (1905), Cohn (1905), Falta (1905), Horniker and Romanin (1905), and Zelenkowski (1906) testified that radium also caused the lesions of trachoma to retrogress rapidly, but many of these early records were not explicit with reference to permanency of cure or duration of improvement. Birch-Hirschfeld (1905) also reported improvement in ten cases, but in nine the disease recurred. Esdra (1906), Fortunati and Esdra (1908), and Flemming (1913) noted cure or improvement in some cases, but in the majority of cases it was impossible to be certain that radium was responsible for the slight amelioration in the condition of the patients. Although the foregoing reports do not furnish sufficient information for analysis, the impression is derived that failure to obtain more substantial results may have been due to inadequate treatment or faulty technique. This impression is strengthened by a review of the communications of Zelenkowski (1906), Jacoby (1906), Kardo-Sisoyeff (1906), Dinger (1906), Neuschuler and Steiner (1906), Thibault (1906), Norton (1907), Zelenkowski (1908), Muller and Höglér (1922), Sallmann (1923), Wassing (1923), Lane (1924), and others.

All the foregoing reports, except that of Harman, concur in showing that exposure to roentgen or radium rays causes the trachomatous granules to diminish rapidly in size and number and to disappear, and this is accompanied by early relief from pain and improvement in the other symptoms. Zelenkowski appears to have been the first to ascribe this influence of irradiation on the lesions of trachoma to the destructive action of the rays on the lymphocytes which are such an important element of the granulations, but it remained for Sabbadini (1926), whose communications are probably the best on the subject, to prove that irradiation causes the lymphoid elements and granulomatous papillae to disappear and to be replaced by young connective tissue, and the epithelium to regenerate.

ERYSIPELAS

During the last few years it has been found that this disease, also, when it does not complicate conditions such as diabetes or nephritis, often responds well to radiotherapy. This is especially true in adult patients when the treatment is given early. For some reason children, on the whole, do not receive so much benefit. On adults and on some children, however, the effect of moderate irradiation is to cause the fever to abate in from twelve to twenty-four or thirty-six hours and the disease to stop spreading and to recede gradually. In some cases, after a variable period of improvement or complete disappearance of clinical manifestations, the disease may recur, and renewal of treatment in such cases may prove less effective than in the first instances. By moderate irradiation is meant exposure of the affected area or region to from one-third to two-thirds of an erythema dose of roentgen rays of medium wavelength, generated at a potential equivalent to a sphere-gap tension of from 120 to 140 kilovolts, and filtered through four millimeters of aluminium. An apparently important point is that the treatment should not be limited to the visible part of the lesions, but should extend into the adjacent normal tissues well beyond the perceptible limits of the involved territory.

The mechanism by which the rays exert their beneficial influence in this disease has not yet been clearly established, but the significance of lymphocytes in the defense of the organism against infection and the known sensitiveness of these cells to irradiation make it appear likely that, in this condition, as in so many other inflammatory processes, the rays act by destroying lymphocytes infiltrating the lesion or circulating in the blood vessels which supply the affected area. In favor of this view is the rapidity with which the symptoms often abate and the physical signs disappear after exposure to a small or moderate dose of roentgen rays. This in itself points to destruction of lymphocytes as at least the primary and direct result of irradiation, because the lymphocytes are the only cells in the body, except the basal epithelium of the salivary glands, which react to irradiation at a rate which even approaches this rate. The indirect consequences of such destruction and their therapeutic implications will be considered. Also variation in the degree of leukocytic infiltration in different cases may explain the partial or complete failure of irradiation in some cases.

PAROTITIS

Acute parotitis has long been a sinister complication of certain surgical operations. Its incidence is low in general operations, but is high in operations on the large intestine. Rankin and Palmer have found that the disease is from fifteen to twenty times more common after surgical interventions on the colon than after all other operations; it occurred after approximately one of 150 operations on the large bowel. The mortality, as reported by various observers, ranged



Fig. 1.—Large mediastinal tumor before treatment.

between 35 and 60 per cent, and according to Rankin and Palmer depends on the primary condition, the extent and severity of the operation, and on suppuration of one or both parotid glands. When they tested the therapeutic effect of moderate doses of radium applied soon after the onset of the parotitis (infiltrative stage) they found that the inflammatory process abated in most cases within from twenty-four to forty-eight hours, that suppuration was prevented, and that the mortality was correspondingly reduced. After treatment by radium, suppuration was only one-tenth as frequent as after ordinary methods of treatment as reported by others. These conclusions were based on twenty cases, in only two of which surgical drainage had to be instituted.

During the last two years a few such cases have also been treated with roentgen rays, with equally encouraging results. This seems to furnish another example of the property of radiation to influence favorably many varieties of inflammation. An interesting feature of the reaction of acute parotitis to irradiation is that the effect is much the same and becomes perceptible at about the same time after exposure as other acute inflammatory processes. There is reason to believe, therefore, that the mechanism involved is essentially the same.

MODE OF ACTION OF IRRADIATION

The natural tendency would be to think that the effect of the rays on acute inflammatory lesions may be due to a bactericidal action on the infecting organisms, but the almost constantly negative results of the large number of experiments undertaken to test the influence of irradiation on many kinds of bacteria renders such an

explanation untenable. The experiments on animals previously described have shown that leukocytes, especially the lymphocytes in the spleen; in the mesenteric and other lymph nodes, in the intestinal lymph follicles, and even in the lymphoid tissue of the vermiform appendix and lungs, are exceptionally sensitive to roentgen or radium rays, and that a large number of such cells in the irradiated territory may be caused to disintegrate. The chief points to bear in mind are that the destructive action of the rays begins soon after exposure, although visible effects may not become perceptible for several days, and that a considerable degree of lymphocytic disintegration occurs even after a small dose of irradiation.

One of the earliest and most important steps in the natural defense of the organism against most infectious processes is leukocytosis, and especially lymphocytic, infiltration around the site of infection. Therefore, when an inflammatory lesion is irradiated, destruction of the infiltrating lymphocytes is to be expected. But since leukocytic infiltration is such an important factor in the defense against infection, the question naturally arises of why the destruction of a large number of the lymphocytes infiltrating such lesions may not do more harm than good naturally arises. The only answer is that no one has yet submitted any evidence of such ill effect. Always the influence of irradiation has been favorable or the rays have failed to alter the course of the inflammatory process. When I first attempted to ascertain the therapeutic value of irradiation for lesions of this character this question was uppermost in my mind, and I carefully analyzed all the known

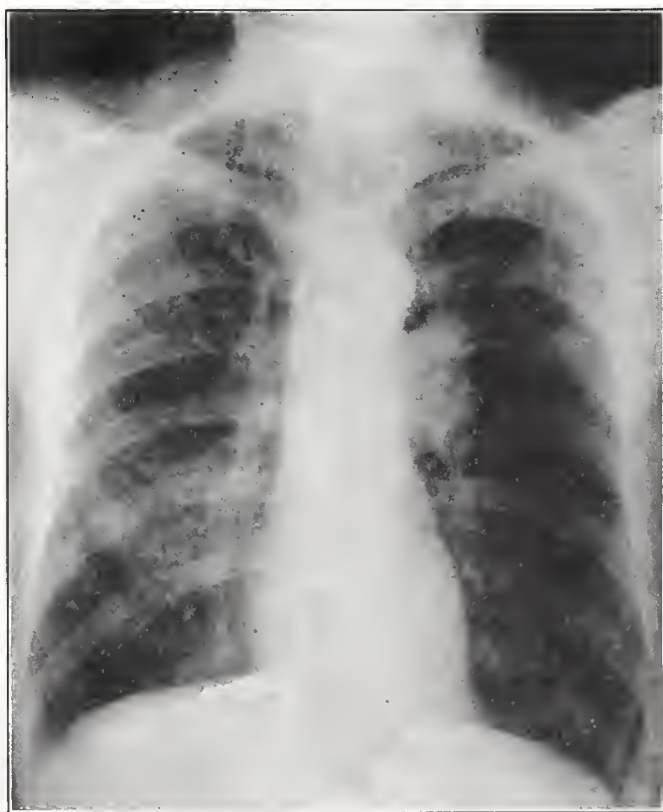


Fig. 2.—Patient represented in Figure 1 twenty-one days later and two weeks after a course of roentgen irradiation. Marked retrogression of the mediastinal tumor is shown.

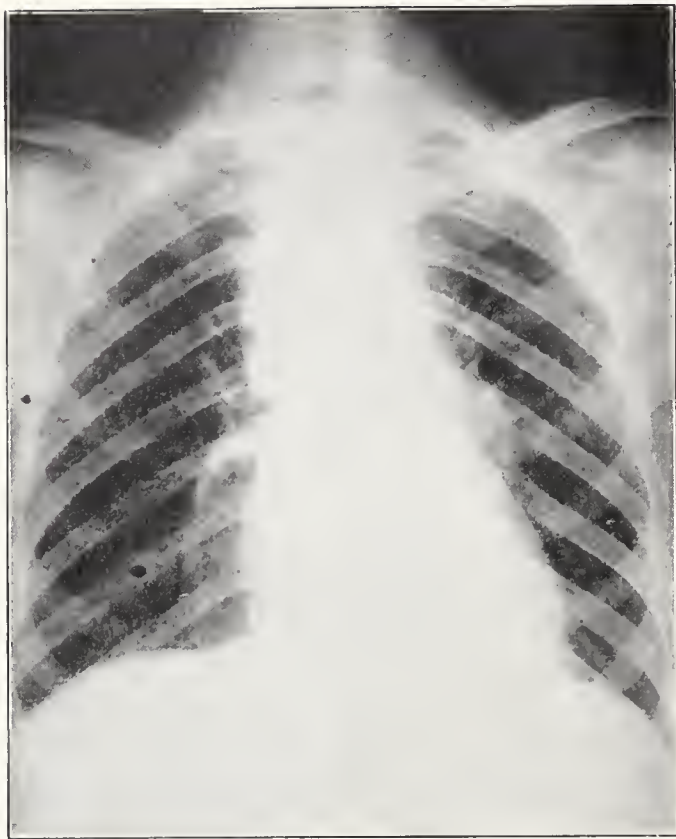


Fig. 3.—Large mediastinal tumor before treatment.

experimental and clinical facts. The first patients were treated with great caution. Now, after treating a large number of patients over a period of several years, I can testify that if, in some cases, radiotherapy remains without favorable effect, it has never had an unfavorable action. Moreover, in the majority of cases in which benefit has been derived it has been found that a small or moderate dose of rays of medium quality is sufficient to produce the desired results. Large doses of rays of short wavelength are not required and are indeed undesirable, probably because a smaller proportion of such rays is absorbed by the tissues at the level of the lesion.

How may such an apparent paradox be explained? After trying to correlate the experimental and clinical observations, I have formulated the following hypothesis which appears to harmonize with all the known facts. If it can be assumed that the leukocytes, and especially the lymphocytes, which the organism mobilizes around the site of infection represent an effort to localize the infection and to get rid of the infectious material by phagocytosis or otherwise, it must also be assumed that the infiltrating cells contain or elaborate within themselves the protective substances or other means which enable them to destroy or neutralize the bacterial or other toxic products which give rise to the defensive inflammation. If these assumptions are well founded, it seems not unreasonable to deduce that irradiation, by destroying the infiltrating lymphocytes, causes the protective substances contained by such cells to be liberated and to be made even more readily available for defensive purposes than they were in the intact cells. There can be little question that the rays act by destroying the

infiltrating leukocytes, and that the value of radiotherapy depends chiefly on such action. In favor of this view are the points already mentioned, namely, that the rapidity of recession of irradiated inflammatory lesions corresponds closely to the rate at which the normal lymphocytes are known to be influenced by exposure to the rays, and that a small or moderate dose of irradiation is sufficient or even preferable to a large dose. Other circumstances pointing in the same direction are that radiotherapy is most beneficial during the infiltrative stage and less beneficial during the suppurative stage (although some benefit may be derived) of the inflammatory process, and that, although many such lesions respond rapidly to treatment of this kind, some respond less rapidly or do not respond at all. In connection with the last point, variation in the degree of leukocytic infiltration of different lesions of the same character or of similar lesions of different character is a well-known pathologic fact. Therefore, it is at least permissible to believe, or even to expect, that the degree of leukocytic infiltration must influence the action of the rays, because the rays can destroy lymphocytes only in proportion to the number of such cells. This is undoubtedly related to and probably explains the fact that, although many inflammatory lesions are influenced favorably by irradiation, some react much less or fail to show any reaction.

LYMPHOID TUMORS

The significance of the specific sensitiveness of lymphocytes is as important in tumors arising in lymphoid organs and structures as in purely

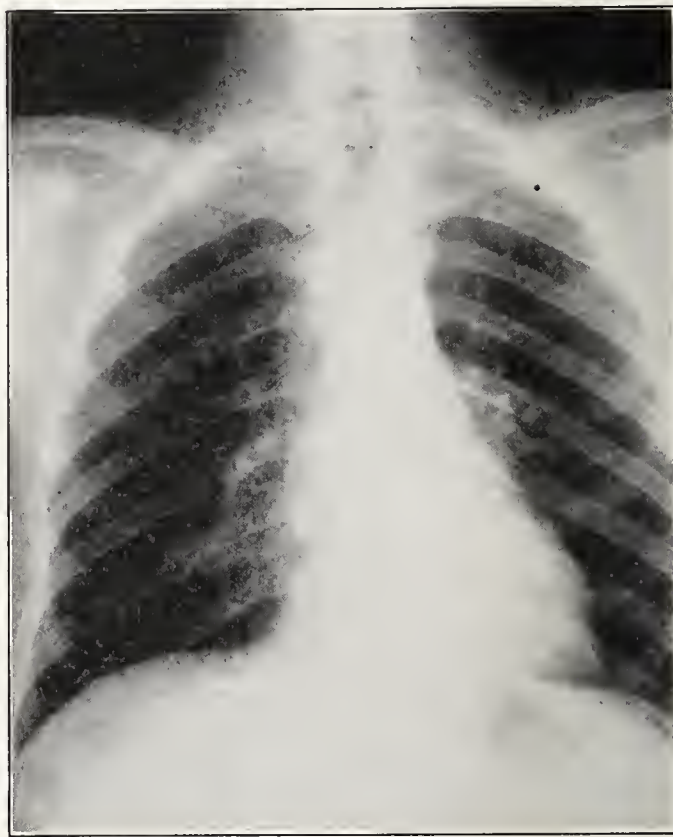


Fig. 4.—Patient represented in Figure 3 one month and three weeks after a course of roentgen irradiation. Marked reduction in the size of the mediastinal tumor is shown.

inflammatory lesions. The unrestrained lymphocytic hyperplasia of lymph nodes which constitutes the chief characteristic of Hodgkin's disease, lymphosarcoma, and lymphatic leukemia, and of the spleen in myelogenous leukemia, provides the best example. The power of irradiation to cause such adenopathy to retrogress or actually to disappear for short or long periods has made radiotherapy the most satisfactory means of temporarily controlling the malignant tendency of such conditions. Here also it is found that the rate of regression of the adenopathy is precisely the rate at which normal lymphocytes are known to be destroyed by irradiation. This significant fact enables the experienced radiologist not only to improve the condition of the patient and relieve many distressing symptoms, but actually to distinguish the group of diseases or tumors collectively known as lymphoblastoma from all other tumors or conditions with which they might be confounded. The radiotherapeutic test is of distinct value whenever biopsy cannot be done or does not furnish conclusive information. In some cases, indeed, the radiotherapeutic test is more reliable than microscopic examination of sections of tissue. A diagnosis by the reaction of the hyperplastic lymphoid structures can almost always be made in from a few days to two or three weeks. The volume of the enlarged lymph nodes or spleen rapidly diminishes, and the clinical manifestations of pressure on other organs, blood vessels, or nerves, promptly abate. Pain of weeks' or months' standing is often relieved in two or three days. The very rapidity of action indicates that the disease condition is one affecting lymphoid structures. Figure 1 shows a large mediastinal tumor before treatment, and Figure 2 shows the mediastinum of the same patient three weeks after a single course of roentgen irradiation. Such rapid regression of a tumor in such a short time is characteristic of lymphoid tissue and corresponds with the rate of destruction of normal lymphocytes by irradiation. This is true regardless of the region involved. A carcinoma of the bronchus, esophagus, or lung never undergoes so great a change in such a relatively brief space of time; indeed, few intrathoracic carcinomas or sarcomas ever retrogress to such an extent, regardless of time. The different forms of lymphoblastoma, it is true, vary somewhat in radiosensitiveness, and a measure of variation also occurs among lymphoblastomas of the same kind, but such variation is almost never great enough to cause confusion. Figures 3 and 4 represent another example. The former shows a mediastinal tumor before treatment, and the latter the same mediastinum three weeks after a single course of roentgen irradiation. Such a degree of radiosensitiveness is so typical of lymphoid tissues and tumors in general that it constitutes a valuable therapeutic test and can render great service in the differential diagnosis of certain varieties of tumor. This is especially important when tissue cannot be removed for microscopic examination or when the patient refuses to sub-

mit to such a procedure. Indeed, when the clinical manifestations are not clearly defined or when, as in some cases of lymphoblastoma, a mediastinal or other tumor is not accompanied by palpable enlargement of the superficial lymph nodes, the reaction of the growth to irradiation may generally be depended on to make a sharp distinction between lymphoid growths and neoplasms of other derivation. Long experience has established the great reliability of such a radiotherapeutic test, which is being used daily to identify lymphoid tumors, as well as to exclude such processes.*

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* The complete list of 104 references will be found in the reprints.

UNEXPLAINED EOSINOPHILIA*

REPORT OF CASES

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DISCUSSION by Ernest H. Falconer, M. D., San Francisco; and Charles L. Connor, M. D., San Francisco.

EOSINOPHILIA, a frequent clinical finding, is ascribed to many different causes. Physiological eosinophilia,² so-called, occurs after prolonged fasts, and after hemorrhage, or loss of hemoglobin in hemoglobinuria. In convalescence¹ from the acute evanthemata, eosinophilia is frequently observed. The average eosinophil count of individuals residing in tropical or subtropical climates is said to be nearer ten than the commonly accepted standard of three. Eosinophils seem to bear a relation to the functions of the glands of sex, as these cells are moderately increased after coitus and female castration, and during lactation, menopause, and the puerperium.

DRUGS WHICH INDUCE AN EOSINOPHILIA

Many different drugs induce an eosinophilia, and such an increase is observed after the administration of arsenic, nuclein, pilocarpin,³ camphor, dinitrobenzol, acetanilid, sodium solicylate, mercury, potassium iodid, and pituitary extract.⁵ Eosinophilia has been observed after poisoning with phosphorus and with carbon dioxid.⁴

The increase in eosinophils following infestation with animal parasites⁶ is well known. Parasites evoking such a response are the *Oxyuris*, *Ascaris*, *Echinococcus*, *Trichina*, *Uncinaria*, *Tacniae saginata* and *solium*, *Dibothriocephalus*, *Bilharzia* and *Filaria bancrofti*. Infestation with the *Leishmania*, *Trypanosome* or *Ameba* may or may not be accompanied by eosinophilia.

THEORY OF PHAGOCYtic FUNCTION

Some authorities, notably Fiessinger and Mesnil, believe that eosinophils have an important phagocytic function, and protect the body particularly against toxins. Evidence favoring this theory is the eosinophilia observed in infants following the ingestion of a protein to which they are unaccustomed,⁷ and in adults the eosinophilia

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following ingestion of a protein to which the individual has become sensitized.⁸ Eosinophilia frequently occurs in food poisoning from spoiled meats.⁹ Injections of such foreign proteins as horse serum, egg albumen, and tuberculin may increase the number of these cells.

PATHOLOGIC CONDITIONS WHICH FAVOR EOSINOPHILIA

Among the acute infectious diseases eosinophilia usually occurs in scarlet fever.¹⁰ It is occasionally observed in other infectious diseases¹¹ following the injection of foreign protein in the form of antitoxic sera.

Many among the common skin diseases are characterized by the accompanying eosinophilia. The erythematous and pemphigus types, herpetiform dermatitis and bullous dermatitis are particularly notable in this respect. Eosinophilia is also of frequent occurrence in prurigo, psoriasis, scabies, herpes iris, mycosis fungoides, traumatic effusions and exudates. It is occasionally observed in eczema.

In certain diseases associated with the phenomenon of anaphylaxis an eosinophil increase is almost constant. Asthma,¹² hay fever, Quincke's edema and serum sickness are representatives of this group.

Eosinophilia is observed in dyscrasias of the blood. Donald and Shaw,¹⁴ Schmidt and Weyland,¹³ and Griffin⁵ have described a form of leukemia characterized by generalized lymphadenopathy, marked splenomegaly, anasarca, and eosinophilic leukocytosis. The eosinophils are frequently increased during the febrile stage of Hodgkin's disease and in malaria. Beifeld and Barnes¹⁵ describe an anemia resembling primary anemia with an eosinophil count of 47 per cent.

The list of miscellaneous conditions sometimes associated with eosinophilia includes almost all of the known diseases. Among the commoner conditions in which eosinophilia may occur are muscular rheumatism,¹⁶ chronic arthritis,¹⁷ otitis media,¹⁸ pleural effusion,¹⁹ cancer,^{20 21} migraine,²² leprosy, rheumatic fever, chronic pulmonary disease, chronic cardiovascular-renal disease, prostatic hypertrophy,²³ tertiary syphilis, chorea,²⁴ paratyphoid fever, and even dementia praecox.

A case of constitutional eosinophilia in an otherwise healthy man has been reported by Cirio.²⁵ In this instance the eosinophils comprised 66 per cent of the differential count. Two of the patient's children and his brother all showed an increase in eosinophils between 6 and 15 per cent.

IDIOPATHIC EOSINOPHILIA

Occasionally an eosinophilia is encountered for which no cause is apparent even after extensive clinical investigation. Amberg²⁶ in 1913 reported such a case, and in 1925 Boekelman²⁷ described seven cases of intense eosinophilia for which no cause was demonstrable. It is this latter form of eosinophilia with which this paper is chiefly concerned.

THE RÔLE OF THE EOSINOPHIL

Since it was first described in 1846 by Wharton Jones,²⁸ and named in 1878 by Ehrlich, no definite rôle in the bodily economy has been assigned to the eosinophil. There is still much disagreement as to the place of origin of this cell. Whether, as claimed by Weidenreich²⁹ and by Adertscher, the eosinophil is simply a lymphocyte with ingested particles of erythrocytes visible within its transparent protoplasmic paunch; whether, as Griffin believes, eosinophils are undifferentiated mononuclear cells originating in the bone marrow and lymphoid tissue; or whether eosinophil granules are amorphous deposits of Charcot-Leyden crystals, as advanced by Liebreich,³⁰ is still a question under discussion. Sabin³¹ states that all granulocytes originate from a common parent cell in the bone marrow.

The function of the eosinophil is more obscure than its origin. Liebreich³² believes that the same factors preventing the coagulation of blood also prevent the appearance of eosinophils and Charcot-Leyden crystals.³³ Weinberg, Seguin, and Mesnil think the cells have an important phagocytic function, and Lepsky believes that this phagocytic property is concerned chiefly with the removal of toxins from the body. Opie and Schwarz, finding an increased number of eosinophils present in the blood after a meal, conclude that the eosinophil is intimately related in some way to digestion, either conveying a secretory hormone to the intestinal glands, or carrying away a digested food material from the intestine. Falta is determined in his conviction that eosinophilia follows increased tonus of the parasympathetic nervous system, and cites as evidence the increase in eosinophils following medication with pilocarpin. Klinkert^{1 34} supports this view, and as proof of the connection between the overactivity of the vagus system and the immunity mechanism of the body emphasizes postfebrile bradycardia and eosinophilia of convalescence. Mays and Moncorps³⁵ have demonstrated a relationship between the spleen and eosinophil content of the blood. Splenectomized guinea pigs showed first a decrease, and later a subsequent slow rise in eosinophils. Protein-free extracts of spleen injected into patients with itching dermatoses resulted in a diminution of the pruritus, and a fall in the eosinophil count.

REPORT OF CASES

The following case reports may prove interesting because of the definite eosinophilia for which no causative factor could be found.

CASE 1.—O. L., male, age fifty, German, machinist. The patient was first seen in December 1928, when he complained of dull epigastric burning, headache, and constipation of five days' duration. Physical examination was negative except for a palpable right epitrochlear gland. The urine showed five to ten pus cells per high power field. The Wassermann was negative.

Four days after the first visit the patient returned complaining of insomnia, weakness, and fever. He

was admitted to the hospital with a temperature of 39 C. (102.2 F.). A blood count showed 4,620,000 erythrocytes, 18,250 leukocytes, and a differential count of polymorphonuclear leukocytes 86 per cent, and lymphocytes 14 per cent. Complete Röntgenographic studies which included a gastro-intestinal series, a chest plate, and a flat plate of the urinary tract revealed no disease.

After a seven-day hospital stay the patient was dismissed without a definite diagnosis having been made. A slight pyuria persisted, and he still complained of night sweats. A genito-urinary examination proved the pyuria to be originating from an old prostatitis. On January 2 a blood count showed 18,600 leukocytes, 75 per cent polymorphonuclears, 23 per cent lymphocytes, and 2 per cent eosinophils. A blood count on January 14 still demonstrated a leukocytosis of 21,190, and a differential of 81 per cent polymorphonuclears, 18 per cent lymphocytes, and one per cent eosinophils.

On January 24, the symptoms persisting, the patient reentered the hospital. The temperature was normal, and the only new physical finding was a palpable liver edge which extended two finger-breadths below the costal margin. Blood cultures, repeated stool examinations, and spinal fluid were negative. The Van den Bergh and icterus index were normal. The pyuria had practically disappeared. The blood, however, showed 17,850 leukocytes with 25 per cent polymorphonuclear leukocytes, 20 per cent lymphocytes, 52 per cent eosinophils, and 2 per cent basophils. On February 9 the leukocytes numbered 16,150, with 32 per cent eosinophils. A count on February 23 showed 9950 leukocytes and 25 per cent eosinophils. A biopsy of the enlarged epitrochlear gland revealed only hyperplastic lymphatic tissue with an increased eosinophylic infiltration which was most marked near the blood sinuses.

The patient was seen again on March 20. At this time he had returned to work, and felt quite well. A blood count showed 8200 white cells, 35 per cent polymorphonuclear leukocytes, 54 per cent lymphocytes, and 11 per cent eosinophils. He was last seen on September 20, when the blood count was entirely normal.

CASE 2.—J. B., male, age thirty-one, Italian, laborer. The patient was first seen in September 1923, when he came to the clinic seeking relief from a chronic cough of three months' duration. Aside from the drainage of an appendiceal abscess five years previous, the past history was unimportant. Physical examination revealed a few indeterminate crackles over the apex of the left lung, but an x-ray of the chest was negative. Upon using a simple cough mixture the patient recovered.

In August 1927 the patient entered the hospital for the drainage of a prostatic abscess. A blood count at this time showed normal erythrocytes and hemoglobin. A leukocytosis of 15,400 was present; the differential showed: polymorphonuclear leukocytes, 78 per cent; lymphocytes, 20 per cent; and eosinophils, 2 per cent.

From this time until October 1928 the patient attended the genito-urinary clinic for the treatment of a chronic prostatitis, gonorrheal in etiology.

In January 1929 the patient returned to the medical clinic complaining of gaseous cructations and epigastric burning pain, coming a half hour after meals and relieved by food. A gastro-intestinal series and a test-meal proved normal, although the patient received much relief from the thirty to sixty-day Sippy regimen.

In May 1929 the abdominal pain had subsided, but he had developed a dull continuous pain in the right anterior chest which radiated through the body to the right scapula. He had two or three soft bowel movements daily. The only findings made on physical examination were a few shotty posterior cervical glands, and a small node in the left axilla. The Wassermann was negative. Repeated stool examinations, an x-ray of the chest, proctoscopic examination, and the outline of the colon following an opaque enema were all negative. The only unusual findings were in the blood, which showed: 17,350 leukocytes, 45 per cent polymorphonuclear leukocytes, 24 per cent lymphocytes, and 31 per cent eosinophils.

Upon leaving the hospital the patient attended the clinic for three weeks, and at the end of this time he felt sufficiently recovered to return to work although the blood count still showed 14,400 leukocytes with a differential of 31 per cent polymorphonuclear leukocytes, 21 per cent lymphocytes, 2 per cent transitionals, and 46 per cent eosinophils.

CASE 3.—L. A., male, age thirty-two, Italian, laborer. This patient first attended the clinic in 1925, when a diagnosis of chronic prostatitis was made. In October 1927 the patient entered the hospital complaining of pain in the right lower quadrant of the abdomen at the site of a recurrent inguinal hernia. This lower abdominal pain was burning in character, and was aggravated by eating. The patient's bowels were loose, and moved five to six times a day. No abnormal physical findings other than the hernia were made out. The urine, the gastric contents, and a gastro-intestinal series were negative. Repeated stool examinations showed no parasites. The basal metabolism was plus four. Proctoscopic examination was negative. Blood counts were as in Table 1.

The patient was dismissed from the hospital suspected of a chronic inflammatory process in the lower abdomen. He continued to have pain and tenderness in the right lower quadrant, and in November 1927 he reentered the hospital for repair of the inguinal hernia. An appendectomy was done through the herniotomy incision. Histologically the appendix showed some fibrosis in the submucous and muscular layers. The lumen of the tip was obliterated for the distance of 0.6 centimeters.

Subsequent to the operation the patient was followed in the clinic. His complaints were relieved not at all following operation. The blood count on his last visit in August 1928 had returned to normal.

CASE 4.—B. P., male, age forty, Greek, waiter. This patient had been observed during the course of four years. His complaints were always those of weakness, easy fatigability, and dyspepsia characterized by ano-

TABLE 1.—Blood Counts in Case 3

Date	Erythrocytes	Hemoglobin	W. B. C.	Polys.	Lymph.	Eosin.	Baso.	Trans.
10/14/27	4,480,000	83	7,650	67	20	11		2
10/15/27	4,670,000	85	8,400	50	25	24		
11/2/27	4,640,000	90	9,450	37	38	20	1	3
11/6/27				56	29	15		
11/14/27		78	6,350	35	39	22		3
12/22/27	4,880,000	75	10,550	68	29	1	1	1
3/5/28	4,450,000	85	5,400	53	42	2		3

TABLE 2.—Blood Counts in Case 4

Date	Erythrocytes	Hemoglobin	W. B. C.	Polys.	Lymph.	Eosin.	Trans.	Baso.
5/1/29	5,455,000	108	7,200	46	42	9	3	
6/12/29	5,170,000	99	7,450	46	39	7	7	1
6/29/29	4,800,000	85	8,200	44	40	4	1	1

rexia, gas, constipation, and dull epigastric discomfort. At all times he exhibited a marked hypotension which varied from 98/70 to 75/55. At one time the possibility of Addison's disease had been considered. A very complete laboratory investigation failed to reveal any abnormalities. Clinical trial on such different medications as strychnin, ephedrin, digitalis, and atropin failed to give relief. Several consecutive blood counts revealed the following picture (Table 2):

CASE 5.—R. M., female, age forty-four, American, housewife. This patient's complaints were those associated with menopause. She suffered from hot flashes, nervousness, belching, epigastric heaviness, and constipation. Except for a moderate degree of obesity, physical examination disclosed nothing abnormal. The urine, Wassermann, and repeated stools were negative. The blood count showed: 4,800,000 erythrocytes, 80 per cent hemoglobin, 7800 leukocytes, 58 per cent polymorphonuclear leukocytes, 26 per cent lymphocytes, and 16 per cent eosinophils. The eosinophilia persisted for two weeks, and the count still numbered 14 per cent when the patient was last seen.

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CASE 6.—M. H., female, age fifty-four, American, housewife. This patient who had been under observation for four years had at various times complained of constipation, and a dull pain in the left lower quadrant of the abdomen. On her first visit to the clinic a positive Wassermann had been discovered, and she had received four courses of neosarsphenamin and three of bismuth metal. Her blood Wassermann and spinal fluid had remained persistently negative for three years preceding her present illness.

In February 1928 she suffered an acute gastrointestinal upset lasting one week, and characterized only by nausea and vomiting. In December 1929 she complained of a watery diarrhea, with five or six stools daily. There was no nausea and no abdominal pain. Examination was entirely negative. The abdomen was soft and not tender. Special examinations included urinalysis, proctoscopy, and gastro-intestinal x-rays. Repeated examinations of the stools revealed nothing other than Charcot-Leyden crystals. The blood picture is presented in Table 3.

While under observation there was no diarrhea. The patient was dismissed feeling perfectly well.

COMMENT

Six instances of unexplained eosinophilia are presented. All of the patients had vague dyspeptic symptoms. Five complained of epigastric unrest, with heaviness or burning pain. Four had been constipated, and four had had diarrhea, with as many as six watery stools daily. Three complained of "gas," and two suffered lower abdominal pain described as "cramping." In all six

patients no definite organic disease could be found even after extensive laboratory and x-ray investigation. Intestinal parasites were ruled out in each instance by painstaking and repeated stool examinations.

In the patients who were followed the eosinophilia persisted from three to sixteen weeks. Only Case 1 was acutely ill with fever and leukocytosis. Case 2 exhibited a marked leukocytosis, but was afebrile. All six patients recovered spontaneously, and without medication.

The outstanding symptom in all six patients was the dyspepsia, usually catalogued under the term of "nervous indigestion." This fact vaguely corroborates Opie and Falta in the assumption that the eosinophil may be concerned with the function of digestion. In the preceding patients, whether digestion was interrupted or whether it was perverted thus permitting the assimilation of foreign proteins from the intestine, is a matter for conjecture.

CONCLUSIONS

Present knowledge of the origin and function of the eosinophil is limited chiefly to theory. The appearance of eosinophilia in certain patients is frequently inexplicable on the basis of any clinical finding.

Six patients who had unexplained eosinophilia accompanied with vague dyspeptic symptoms are discussed. The eosinophilia varied between 9 and 52 per cent. All the patients recovered spontaneously.

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TABLE 3.—Blood Counts in Case 6

Date	Erythrocytes	Hemoglobin	W. B. C.	Polys.	Lymph.	Eosin.	Trans.
12/30/29	4,000,000	74	15,350	59	19	16	6
1/8/30	4,090,000	78	9,960	38	26	36	2
1/13/30			11,720	35	33	30	2

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DISCUSSION

ERNEST H. FALCONER, M. D. (316 Fitzhugh Building, San Francisco).—Doctor Stockton's paper is particularly interesting at this time, as we have just passed through an epidemic of trichinosis and our interest in eosinophilia has consequently been very much stimulated. There are several points brought out in this interesting paper which are worthy of comment, but I shall only refer to two or three, as the whole subject of eosinophilia is in a rather fluid state at the present time. Several investigators believe the eosinophils are not found in the bone marrow, but recent reports of eosinophilic leukemias suggest that probably if the bone marrow were studied in these cases the eosinophils would be found in the marrow tissue. At any rate the leukemias that we have knowledge of from pathological study all show a marked marrow proliferation of leukemic cells. Certain observers have felt that the acidophylic properties of the eosinophils came from ingested material such as muscle hemoglobin and other disintegrated tissue particles. It would seem possible to throw some light on this matter through studying the phagocytic properties of these cells, as has been done with other types of cells, especially the histiocytes. The cases described by Doctor Stockton call to mind two patients whom I have seen within the past three years. These patients had atypical pneumonias running a rather chronic course in which no other cause than the lung infection could be found for the eosinophils which in both cases exceeded 30 per cent of the total number of white cells. It is possible that each of these patients had a small amount of fluid in the pleural cavity.

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CHARLES L. CONNOR, M. D. (Third and Parnassus Avenues, San Francisco).—From the pathological standpoint we are just as much at sea about the significance of the eosinophil as the clinician is. We know in a general way with what conditions this cell is commonly found, but we do not know why it is present nor what it is doing there. It is associated usually with irritative, rather mild inflammatory reactions, such as a pinworm in the appendix or a mild nonspecific dermatitis. The cell is present in late, subsiding, or low-grade infectious (bacterial) processes. It is present normally in rather large numbers in the mucosa of the gastro-intestinal tract, and here, as Doctor Stockton has indicated, it may have something to do with digestion. I think the idea advanced by Doctor Stockton (and certainly suggested by his cases) that a gastro-intestinal irritation of some sort could be responsible for the eosinophilia is tenable. It is a good lead to follow in the study of further similar cases.

ALLERGIC TOXEMIA AND MIGRAINE DUE TO FOOD ALLERGY*

REPORT OF CASES

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DISCUSSION by V. G. Alderson, M. D., Oakland; Samuel H. Hurwitz, M. D., San Francisco; H. E. Henderson, M. D., Santa Barbara.

ALLERGIC toxemia due to food allergy has been reported by me¹ in previous articles and was also suggested by Laroche, Richet, and Saint Girons² in 1919. Though this condition is not uncommon, your attention is directed to it as a clinical entity which has not been described heretofore in the English literature. Along with this, I wish to again emphasize the frequency of migraine due to food allergy and to stress the occurrence of certain cases of neuralgia arising from the same cause. These conditions are not infrequently associated and they will be discussed together in this article.

ALLERGIC TOXEMIA DUE TO FOOD ALLERGY

Allergic toxemia due to food allergy has been recognized by me during the last three years as a marked condition in ten patients out of a series of three hundred and fifty patients who showed definite manifestations of food allergy. It has also occurred in a mild form in other patients suffering with food allergy whose records have not been included in this group. This toxemia produces drowsiness, mental confusion, slowness of thought, lack of initiative and ambition, irritability, despondency, fatigue, weakness, bodily aching, and a feeling of "being poisoned." These symptoms, as shown in Table 1, are usually associated with gastro-intestinal symptoms such as distention, abdominal distress or pain, constipation, mucous colitis, and at times nausea and vomiting. Heavy breath, coated tongue, and canker sores are not infrequent. Migraine or headache of varying degrees of severity is usually present and a sallow, muddy complexion and at times intermittent icterus may occur. Nasal congestion due to food allergy is frequent. These symptoms are exaggerated in certain patients by constipation. This has encouraged the daily use of physics or enemas in many sufferers because of the subjective relief obtained. Thus the old autointoxication in some cases may have been due to "allergic toxemia" due to food allergy.

The average age of the patients in this series was forty-five years. They were all adults with the exception of a girl of fifteen years. It would thus appear that this toxemia becomes especially evident in adult life, though it has probably been responsible for the marked irritability, incorrigibility, inanition and underdevelopment in a few children suffering with food sensitization whom I have studied during the last few years. As with other manifestations of food allergy, it occurs

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most often in women, and the family history usually shows the presence of allergy. The statistics show that, in this series, asthma was not present in any patient. Seasonal or perennial hay fever and cutaneous allergy were present in 50 per cent of the patients, migraine was present in 80 per cent of the subjects, and abdominal allergy occurred in every patient. It is interesting that only one patient recognized the presence of any food idiosyncrasies. Three patients had had nasal operations because of their symptoms and none had had abdominal operations, evidencing the nearly negative type of physical and laboratory examinations which characterized these patients. Skin tests with the cutaneous method were essentially negative. Two patients gave a few slight reactions to foods. These reactions, however, did not indicate all of the foods producing the symptoms, and treatment was carried out with my "elimination diets" modified according to the skin tests when such occurred. Roentgen-ray examinations of the gastro-intestinal tract were negative in seven patients except for slight duodenal stasis in one, hyperperistalsis which disappeared after symptoms were controlled by an elimination diet in another, and ptosis in a third. The stomach analysis of eight patients showed no deficiency of hydrochloric acid in any instance, and four gall-bladder studies after the oral ingestion of dye were normal. Patients usually suffer with this toxemia for many years and often give a history of constipation, indigestion or bilious headaches in the teens or even in childhood.

This allergic toxemia due to food allergy has its counterpart in that due to pollen sensitization which has been described by Kahn.³ Other causes of severe chronic allergy, such as marked animal emanation sensitization, produce profound disturbances in the physique and nourishment of the patients. But in my experience the marked toxemia met with in chronic food allergy in adults is not surpassed by that due to other sensitizations. The pathogenesis of this allergic toxemia is difficult to decide. There is probably a localized allergic edema in the liver with consequent disturbance in its important functions. When migraine and gastro-intestinal symptoms occur allergic reactions probably are present in the brain and in the gastro-intestinal tract. The profound symptoms of toxemia, however, would suggest a generalized effect in many organs and tissues of the entire organism.

The following case histories exemplify the characteristics of this allergic toxemia.

REPORT OF CASES

CASE 1.—A woman, age fifty-two, had been toxic, dull, exhausted, nervous, highstrung, and had ached all over her body for twenty years. Headaches had been present since childhood, occurring every one to two weeks. Indigestion since girlhood had produced distention, belching, and heart-burn for several years, and a severe pain to the left of the umbilicus had recurred every day or two. For seven years eczema had been present in the ears, and it had been present in her scalp all her life. Coryza after eating and bronchitis for many years had been constant.

Her mother had headaches. A daughter had asthma of thirty years' duration, controlled during the last year by my pollen and dietetic therapy.

Her physical, laboratory, and skin tests were all negative, and physicians had ascribed her symptoms to change of life.

On December 13 she was placed on elimination diet No. 1, with tapioca, grapefruit, artichoke, pineapple, apricot, and pear. On December 28 she stated she was feeling better than in years and that the dullness, headaches, toxicity, eczema, and nasal congestion had nearly disappeared. On January 29 one teaspoonful of milk had produced headache. On March 28 she reported her symptoms relieved and that her abdominal pain which had resisted for a long time was gone. She knew milk "was poison to her." Since then relief has continued except when she has broken her diet.

Comment.—Food allergy as the cause of the varied group of symptoms in this patient had never been suspected by the many physicians consulted or by the patient. It was suggested immediately to me because of her personal and family history of allergy and her many negative examinations.

CASE 2.—A man, age thirty-four, had had marked nervousness and recurrent right-sided migraine since the age of ten years, increasing during the last ten years. Great difficulty in remembering, concentrating, and thinking, associated with fatigue and weakness, had impaired his efficiency greatly. For a decade at least he had had severe recurrent abdominal pain just below the umbilicus, associated with gas in the bowels and rather constant nausea after nearly every meal. No other allergic manifestations were present. His brother had asthma, his mother a recurrent allergic bronchitis, and his maternal aunt had hay fever. Tonsillectomy, submucous resection, and openings of antrums for relief of headaches and toxemia had been without effect. Physical examination, laboratory tests including blood, urine, Wassermann, and stool analyses, a metabolic rate, and roentgen-ray studies of the sinuses and gastro-intestinal tract were all negative. Skin tests showed delayed reactions to wheat and a two plus reaction to beet. Intradermal tests were negative to milk and egg and delayed to wheat. Elimination diets 1, 2, and 3 completely controlled his symptoms without any other medication. His ambition and self-confidence has returned and no more fatigue, mental confusion and nervousness has existed for two years. His diet has gradually been increased though the exclusion of wheat, milk, and eggs has been necessary.

Comment.—Food allergy proved to be the sole cause of the toxic, mental, nervous, and digestive symptoms in this patient. The profound cerebral disturbances and typical migraine produced by food sensitization are illustrated. This case emphasizes the fact that many symptoms occurring in patients with negative physical and laboratory examinations who have a family history of allergy (though this may not be elicited in some cases) are due to food allergy and emphasize the importance of keeping such etiology continually in mind in all cases with obscure problems. The uselessness of nasal surgery in such cases is strongly evident in this record.

CASE 3.—A woman, age fifty-seven, has had sick headaches every few days all her life. Since she had restricted starches a few years ago they had been less frequent.

Constipation had always been present. Daily phys-
ics had been necessary to ameliorate her nervousness,

depression, toxicity, poor memory and inability to concentrate. Sour stomach, soreness in epigastrium, and an aching over the liver with bilious attacks had occurred. For one year she had had a full throbbing sensation in the ears and an aching in the lower jaw and neck. Soreness in many joints had increased for ten years.

Cake, rich foods, and starches were known to give indigestion. Macaroni had produced immediate collapse at the table. Bananas always gave severe headaches. Milk ingestion had always resulted in diarrhea and cramping. Fifteen years ago a milk diet was persisted in for two weeks with severe results.

Hay fever had been present between the ages of twenty-seven and thirty years, hives occasionally in youth, and cracking of finger ends for eight years.

The family history revealed asthma and indigestion in one son and indigestion in two other sons and a daughter. All examinations and skin tests except to milk, chicken and duck feathers, goat hair, cottonseed and a few fall pollens were negative.

She has been on elimination diets 1, 2, and 3. Marvelous relief from constipation, indigestion, and aching in jaws and neck occurred in three days and this has continued for the last year. Wheat, milk, and eggs on various trials have been "poison to her." Various vegetables and fruits have been added.

Comment.—Food allergy existing throughout life was responsible for her toxemia, headaches, indigestion and the neuralgic pain in her jaws. The pain over her liver suggested a localized allergy in that organ. The collapse at the table was probably due to wheat and has been observed by me in an infant due to a like cause. Her milk sensitization was indicated by a one plus reaction, but the marked allergies to wheat, banana, and other foods were not associated with positive reactions, illustrating the value of elimination diets in diagnosis and treatment of food allergy.

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CASE 4.—A woman, age forty-two, had had "intense toxemia" since the age of thirteen years. Frequent attacks of drowsiness, stupor, exhaustion, "heaviness all through the body as though she was poisoned," biliousness and at times nausea and vomiting for many hours had occurred and she had rarely been entirely free from some of these symptoms. Since the age of thirteen, she had known that the slightest trace of onion or garlic would produce this toxemia, lasting for several days. "A drop of onion sauce was as bad as a dishful," making it difficult to eat away from home. Milk had always produced immediate vomiting and eggs a marked gastric acidity. Green pepper, tomato, cucumber, and pimento affected her to a lesser degree, as did onion. Walnuts were poison to her. All her life she had had chronic winter colds which had resisted vaccine and local therapy. Several diagnostic studies in the past had been negative, and my physical, laboratory, roentgen-ray studies and skin tests were negative except for a one plus reaction to whole egg and egg white. Negative reactions to milk, onion, garlic, tomato, and walnut to which known sensitization existed emphasize the frequent occurrence of food allergy without skin reactions.

Elimination diets 1, 2, and 3, minus tomato, have produced complete control of all her toxic symptoms and her indigestion for a period of six months. For the first time in her memory she has been free from her chronic winter colds. On two occasions, in spite of care, she has taken food containing unsuspected traces of onion or garlic, resulting in discomfort in her stomach in twenty minutes, increasing exhaustion, vomiting in two hours, and a toxic feeling for several days. Cream tomato soup produced similar symptoms for five days. She is being desensitized to an onion-garlic extract because of their universal use in cooking.

Comment.—Though the patient knew her toxemia was due to definite foods, the importance of total exclusion had never occurred to her. This case emphasizes the occurrence of negative skin reactions in food allergy, the profound and varied symptoms which result from even a drop of food to which allergy exists and the fact that toxemia, mental confusion, indigestion, and nasal congestion may be due to localized reactions resulting from food sensitization.

MIGRAINE AND NEURALGIA DUE TO FOOD ALLERGY

That migraine may be due to food allergy has been reported by Vaughan,⁴ Brown,⁵ Rowe,¹ Balyeat,⁶ and Beecher.⁷ Nineteen cases have been reported by these writers in which therapy was based on skin reactions. Miller and Raulston⁸ and recently Ball have confirmed the reports of Pagneiz and his associates that peptone administered intravenously relieved migraine, thus indicating its allergic nature. They made no attempt to determine the causative types of allergy. In 1928¹ I reported forty-eight cases of migraine and in this article a total of eighty-six cases is included, due, in my opinion, to food allergy. This large number is able to be presented because of the recognition that food allergy in adults usually occurs without skin reactions as emphasized previously by Alexander⁹ and by myself, and because of the use of my elimination diets for the diagnosis and control of food sensitization.

As Liveing¹⁰ and, recently, Woltman¹¹ have emphasized, migraine includes those headaches which are not due to ascertainable pathology. It is usually inherited, may be mild or severe, unilateral or bilateral, and may or may not be associated with nausea or vomiting and allergic toxemia. Slight or marked visual disturbances, transient aphasia, amblyopia, paresthesia, paresis, convulsive seizures, and drowsiness may occur similar to those described by Foster Kennedy in patients afflicted with angioneurotic edema. Liveing, Brunton,¹² Brown,¹³ McClure and Huntsinger,¹⁴ Diamond¹⁵ and others, have commented on the occurrence of icterus, swollen liver and other manifestations of liver dysfunctions which, in my opinion, are due to a probable allergic reaction in the liver itself similar to that which occurs in certain animals in experimental anaphylaxis. As recently reported by Richet and myself,¹⁹ neuralgia may be due to food allergy. Such neuralgia may occur in the neck, head, upper extremities and, as in two of my patients, in the lower back and legs. Trigeminal neuralgia may also be due to food allergy as suggested by Bassoe²⁰ and illustrated in a recent patient in my own clinic who had received five alcoholic injections without relief.

In spite of the above evidence that food allergy is a frequent cause of migraine, physicians still hesitate to accept this etiology. This is due, in my mind, to the fact that skin reactions to foods are often absent or difficult to interpret. Thus Hartsock¹⁶ recently minimized food allergy as a cause of migraine, laying emphasis on duodenal

TABLE 1.—Occurrence of Associated Allergies, Food Idiosyncrasies, and Positive Skin Reactions in Ten Cases of Allergic Toxemia Due to Food Allergy

Cases	Male	Female	Age (Av.)	Posi- tive Family History	Associated Allergy				Food Dislikes and Dis- agree- ments	Surgery		Skin Tests						X-ray of G. I. Tract	Stom- ach Anal- ysis	X-ray Gall Bladder Dye	
					Asthma	5	5	Cuta- neous Allergy		Abdom- inal Allergy	Nose and Throat	Abdom- inal	Food Alone	Total Food	Animal Emana- tions	Dusts	Pollens				Orris Root	Misc.
10	2	8	45 (Av.)	7	5	5	8	10	3	3	0	2	2	1	0	0	0	0	7 ¹	8 ²	4 ³

1. X-rays of the gastro-intestinal tracts were negative except for slight duodenal stasis in one patient, hyperperistalsis in spite of a normal stomach analysis in another and gastric and colonic ptosis in another.

2. All normal.

3. Function normal in all.

1. X-rays of the gastro-intestinal tracts were negative except for slight duodenal stasis in one patient, hyperperistalsis in spite of a normal stomach analysis in another and gastric and colonic ptosis in another.
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stasis and intestinal toxemia. Similar conclusions were arrived at by McClure and Huntsinger,¹⁴ Stevens,¹⁷ and others. In 1921 Brown¹⁸ reported good results from carbohydrate or protein restriction which I feel can best be explained on the basis of food sensitization. The statistics on the eighty-six cases of migraine reported in this article are presented in Tables 2 and 3. Migraine as a severe and major complaint occurred in forty-six patients and as a definite complaint though less severe than some other associated allergic condition in forty patients. These migraines of minor degree are included to emphasize the occurrence of all types of this condition. Women predominated and a positive family history of allergy was the rule. This series included patients of an average age of 39.6 years, though, as Woltman¹¹ and others have pointed out, the migraine in these patients usually began in the teens or twenties. Asthma and hay fever occurred less frequently than did cutaneous and abdominal allergy. Food dislikes or known disagreements occurred in 75 per cent of the patients, emphasizing

ing the importance of a detailed history. Food reactions were obtained in 24 per cent of the patients who failed to react to any other allergen and they occurred in 42 per cent of those patients who gave other types of reactions. But it must be stated that these figures merely indicate those patients who gave one or more reactions to foods. The absence of any reactions to foods in 58 per cent of the patients and the fact that few individuals reacted to any or all of the foods responsible for their migraine emphasizes the importance of diet trial and explains the good results I am able to report with the use of my elimination diets. The frequency of skin reactions to other types of allergens was below one per cent in each instance. Nasopharyngeal and abdominal surgery for relief of the headaches was done without help in 16 and 17 per cent of the patients respectively. In 41 per cent of the cases, stomach analyses were deemed advisable and in no instance was an achylia present. Gall-bladder studies were thought necessary in 17 per cent of the patients and normal filling and emptying of this organ was found in all. Gastro-intestinal roentgen-ray examinations were considered important for differential diagnosis in 53 per cent of the patients. Normal findings were obtained in all individuals except for a large dilated cap in one and moderate duodenal stasis in two others. Migraine resulting from food allergy is probably due to a localized swelling or vascular spasm in the brain. Pain in some cases in the literature has been so severe as to suggest brain tumor, and exploration has revealed angioneurotic edema of the brain itself. Migraine has also occurred in patients with superficial angioneurotic edema. Such localized edemas would explain the transient amblyopia, aphasia, paresis, or paresthesia which have been described as complications of migraine for many decades. The nausea and vomiting which is associated with migraine may be due to central origin, or may be due to a localized concomitant allergic reaction in the liver or gastrointestinal tract.

REPORT OF CASES

The following case histories illustrate the occurrence of migraine due to food sensitizations:

CASE 1.—A woman, age forty-five, had had severe headaches since she could remember. Eggs gave terrible headaches, chocolate a severe frontal or one-sided headache, bananas produced a jerking in her head, especially at night, and apples rested heavily on her stomach. Gravies and potato gave gas and discomfort with bodily aching and trembling. Neuritis in the right arm, excruciating at times, accompanied by stiffness in the right neck and lower back had accompanied the headaches. Indigestion and constipation had occurred. Dizziness, nervousness, restlessness, palpitation, disturbed sleep, and a tendency to chilling of the body had increased for three or four years. Nasal congestion and fullness in the right ear had been frequent.

The father had had headaches and her son had nasal congestion. Examination of all types were negative except for slight duodenal stasis and a spastic transverse and descending colon and delayed reactions to wheat.

Elimination diets 1 and 2 were prescribed and for eight months her headaches, dizziness, neuritis, indi-

TABLE 2.—Incidence of Family History of Allergy and Associated Allergic Syndromes in Eighty-six Patients with Migraine Due to Food Allergy

	Num-ber of Cases	Male	Female	Age	Posi-tive Family His-tory	Associated Allergic Conditions			
						Asth-ma	Hay Fever	Cuta-neous Allergy	Ab-dom-in-al Allergy
Migraine as a major complaint.....	46	16	30	38.4	39	3	4	18	22
Migraine as a minor complaint.....	40	7	33	41	25	7	11	19	33
Total	86	23 (27%)	63 (73%)	39.6 (Aver-age)	64 (74%)	10 (12%)	15 (17%)	37 (43%)	55 (64%)

gestion, palpitation and chilling, have practically disappeared. Milk has been found to give trembling and chilling of the body and headache, tomato makes her sleepy and confused, citrus fruits make her nervous and jerky, and oatmeal produces canker sores on her tongue. Triple pancreatin granules have recently increased her digestive comfort.

Comment.—The relief resulting from the elimination diets and the specific effects of various foods as observed by the patient are typical. The severe neuralgia in arm and lower back relieved on the basis of food allergy draws attention to such a cause for neuralgia in certain patients.

CASE 2.—A man, age thirty-nine, had had headaches since earliest memories, occurring in the left forehead, in back of both eyes and especially in the back of the neck and head. He also had marked neuralgic pains and aching in the neck and shoulders. These headaches recurred at least once a week, lasting from eight hours to two days, and formerly were associated with nausea and vomiting. During the headaches he had to lie on his face and stomach and at times they were so severe he had to dismount from his horse, being a sheepman, and lie down in the grass. Nearly every afternoon he felt dizzy and fatigued. Food seemed to constipate him. Eating of cheese immediately produced a tingling cold sensation all over his body like that from menthol. Alcoholic drinks made him sleepy and had produced a rush of blood to the head. His father had similar headaches for many years. Cholecystectomy and appendectomy were done six years before and tonsillectomy ten years ago with

absolutely no help. Physical examination, laboratory, and x-ray studies were negative except for a duodenal cap which filled with difficulty, possibly due to adhesions from the former operation. Negative skin reactions to all foods occurred. With the use of my elimination diets, the headaches, fatigue, dizziness, and neuralgic pains have entirely disappeared over a period of ten months and he is working very hard without any symptoms. Wheat, eggs, and milk have been found to reproduce symptoms.

CASE 3.—A woman, age thirty-eight, had had recurrent headaches since childhood, and for ten years they had been practically continuous. For many years, purging physics have been taken daily to ameliorate the headaches though at least once a week, in spite of physics, severe headaches had occurred, lasting two to three days. Headaches were nearly always on the left side of the head, focusing in the eye, and nausea and at times vomiting accompanied them. She had no food dislikes or disagreements and had heaviness in the epigastrium with some distress in upper right quadrant with her severe attacks. A persistent eczema around the mouth had been present in girlhood. Persistent medical therapy for years, including daily ovarian and pituitary hypodermics for several months and two ovarian transplants, gave no relief except on one occasion when a reducing diet was prescribed which, it is of interest, cut out milk and wheat especially. A few skin reactions were obtained after complete testing with foods and condiments, but foods which have since been found to produce headaches by the use of the elimination diets gave negative reactions. Wheat is the worst offender, milk and butter give severe headaches, and corn, cherries, apricots, pears, beef, chicken, and pork are all productive of

TABLE 3.—History of Food Idiosyncrasies and the Occurrence of Positive Skin Reactions in Eighty-six Patients with Migraine Due to Food Allergy

	Food Dis-likes or Dis-agree-ments	Food Alone	Positive Skin Reactions						Surgery		Gas-tric Anal-ysis	X-ray of G. I. Tract	X-ray of Gall Blad-der
			Total Food	Animal Ema-nations	Dusts	Pol-lens	Orris Root	Misc.	Naso-phar-ynx	Ab-dom-in-al			
Migraine as a major complaint	33	11	22	6	3	4	4	2	7	7	18	23	8
Migraine as a minor complaint	32	10	14	2	4	4	0	2	7	8	17	23	7
Total 86	65 (75%)	21 (24%)	36 (42%)	8 (.9%)	7 (.8%)	8 (.9%)	4 (.5%)	4 (.5%)	14 (16%)	15 (17%)	35 (41% ¹)	46 (53% ²)	15 (17% ³)

1. Stomach analyses all normal.
2. X-rays all normal except for a large dilated cap in one patient and moderate duodenal stasis in another patient.
3. Gall bladder studies after oral dye all normal.

distress. She is on a well-balanced diet, maintains her weight and strength and "feels as well as she can be."

✓ ✓ ✓

CASE 4.—A woman, age fifty-five, had had migraine, associated with fullness in the head, "picket-fence" flashes, blind spots, faintness, and some nausea. These attacks had recurred every few days to two weeks, increasing in frequency lately and lasting twenty to thirty minutes for the last twenty years. Lately she had had much palpitation and had had increasing weakness and faintness during the attacks, and some flatulence, nausea, and weakness nearly constantly. For six years, arthralgia in various joints in the body had occurred. Her past history was negative except for typhoid at the age of twenty-three. Five years ago an exploratory operation because of indigestion showed no pathology in the upper abdomen and an appendix surrounded by slight adhesions was removed. No allergy was present in her family history unless a "chronic dyspepsia" in father had been due to such cause. Her physical examination, laboratory analyses including a stomach analysis, and two recent gall-bladder studies were all negative. Her skin reactions to foods were negative. She was placed on elimination diets 1 and 2. Her symptoms were rapidly lessened though some faintness and indigestion remained. She was then given peptone hypodermically twice weekly, and beef, apple, grapefruit, orange, string beans, beets, dates, raisins have gradually been added. On this regimen the migraine, faintness, and other symptoms which formerly occurred every day or two have been absent for several months except when she recently ate potato and some weeks ago when she took some milk.

Comment.—This migraine, with its associated symptoms, was relieved on the basis of food allergy. Peptone was of value in clearing up some of the mild symptoms, but recently the addition of milk and potato produced rapid trouble in spite of the administration of peptone.

I therefore feel that every case of migraine should be studied with the possibility of food allergy in mind. Many discussions of migraine, even today, lay most emphasis on neurosis as a cause. It is true that many of these sufferers are introspective, analytical, and neurotic. This is due in large measure, however, to their continued effort at self-help since all types of medical treatment have been of little benefit in the past. Allergy explains all the symptoms of migraine better than any other cause offered to date, and in my experience food allergy is the most probable type of sensitization operative in migraine. That other types of allergy, such as bacterial or that due to abnormal biliary or other secretions or to diseased tissue products, may possibly cause some of the cases of migraine which at present do not yield to dietary therapy is a hypothetical consideration worthy of study. However, it must be fully appreciated that certain patients are sensitive in varying degrees to practically all foods. Skin reactions at times occur in such patients, but they are frequently entirely absent. This extensive type of food sensitization is similar to the occurrence of sensitization to nearly all types of pollens as evidenced by skin reactions to tree, grass, weed, and cultivated flower pollens. In such cases of pollen allergy, persistent therapy with proper antigens will usually produce good results if carried out over a period of two or three years. In extensive food sensitizations, it may be

difficult to exclude all the offending foods, and the frequent absence of food reactions in such cases further complicates the problem. In my experience, however, such cases are in the minority, and the use of my elimination diets, together with the administration of peptone to control mild and obscure food sensitizations in selected cases, has produced most gratifying results.

DIAGNOSIS

In several publications,¹⁹ I have discussed the diagnosis and treatment of food allergy¹ in detail so that only brief mention of the important points will be made in this article.

In order to determine the presence of food sensitization, the history, skin reactions and diet trial are of value. A positive personal or family history of the various types of allergy makes the patient liable to allergic disturbances, though allergy may arise without such heredity. The patient's history of food dislikes or disagreements is also important in laying suspicion on specific food sensitizations. Cutaneous skin reactions to all foods and condiments that the patient ingests even occasionally and intradermal tests with those common foods which give no reactions with the scratch method are important to execute. However, as I have pointed out, food allergy frequently occurs with negative skin reactions due, according to Alexander,⁹ to the localization of the allergy in other than cutaneous tissues. This fact makes diet trial necessary for the diagnosis in most cases of food sensitization, and for this procedure my elimination diets have been of continued and increasing value during the last three years. These diets contain foods which my analysis¹ showed infrequently produced allergic symptoms in one hundred and seventy-five known food sensitive patients. Each diet contains as few of these foods as possible in order to better analyze the effect of each individual one. Each diet, however, contains one or two starches and meats, three or four vegetables and fruits, sugar, oil and salt so that balanced and satisfying meals containing proper calories can be prepared. These original diets are to be used for only one or two weeks, and in the course of a month the decision as to whether or not food allergy is a factor in the patient's problem can usually be made. The final diet can then be supplemented by the addition of vitamin D in viosterol and calcium lactate if milk is to be further excluded. Such additions can be made at the start of the trial diets if desired, though, as Alvarez²² recently stated, a slight deficiency in vitamins or mineral salts for two or three weeks is of little consequence. For the details of the diets, their preparation and adaptation to the patient's problem, the reader is referred to former articles.

TREATMENT

Treatment entails the continuance of the elimination diet which excludes those foods shown by diet trial to produce symptoms. It must be realized that new allergies to foods occasionally de-

TABLE E.—“Elimination Diets” (Rowe) for the Diagnosis and Treatment of Food Allergy*

	Diet 1	Diet 2	Diet 3	Diet 4
Cereal	Rice	Corn Tapioca	Rice Rye	Milk alone for the test period 2-3 quarts a day
Bread	Rice biscuit	Corn pone	Rye-rice	
Meat or fish	Lamb	Bacon Chicken	Beef	
Vegetables	Lettce Spinach Carrots	Squash Asparagus Peas Artichokes	Tomatoes Beets String beans	
Fruits and jams and fruit drinks	Lemon Pears Peaches	Pineapple Apricot Prunes	Grapefruit Pears Peaches	
Miscellaneous	Sugar Olive oil Salt Gelatin Syrup made from cane sugar flavored with maple Olives (unstuffed)	Sugar Mazola oil Salt Karo corn syrup	Sugar Wesson oil Salt Gelatin Syrup made from cane sugar flavored with maple	

- Comments on Administration of “Elimination Diets.”
1. Absolutely no foods other than those specified in each diet can be used. Thus in Diet 1, rice must not be fried with butter or lard, but only with the fat specified, which is olive oil. Absolutely no bread, milk, cream or other nonspecified foods can be used.

2. Prescribed fruits can be used in drinks, in salads, for desserts, and for jams and sauces.

3. Gravies for meats and sauces for vegetables can be thickened only with flour allowable; i. e., rice in Diet 1; cornstarch in Diet 2; etc.

4. Olive oil in Diet 1, corn oil in Diet 2 and cottonseed oil in Diet 3 are indicated according to sensitizations to olive, corn, or cottonseed antigens. These may be interchanged if necessary.

5. Calories must be increased by plenty of sugar, oil and starch prescribed. Vitamins must be assured by plenty of vegetables and fruits prescribed.

6. Each diet has special substitutes for bread made from specified flours and no proprietary breads which may contain unknown ingredients such as milk, etc., can be taken.

7. Special desserts containing only ingredients specified in each diet should be taken. No spices, special foods for flavoring are included in first diets to limit the total ingredients.

8. To maintain carbohydrates and protein content prescribed starches should be taken at each meal and meats at least two meals.

9. These diets are models on which other diets, composed of foods to which no history of sensitization or positive skin reactions exist may be formulated, if necessary, by the physician. However, these three diets have been found effective in most cases for diagnosis and treatment of food allergy and usually may be used in rotation or one added to the other, if symptoms are relieved.

10. These diets can usually be prescribed in succession, with modifications indicated by history or skin tests. Seven to ten days should be given for the trial of each one. They should be increased by the trial of one or two foods every five days. Wheat and egg should be added last and milk tried at the end of four weeks.

velop and that sensitizations may vary in degree from month to month. These facts and others which cannot be discussed here make the control of food allergy a clinical problem necessitating the most careful supervision and follow-up on the physician's part and the most steadfast coöperation of the patient. Results such as I report in this article may be obtained with such effort and will amply reward the physician and patient.

The intravenous use of five per cent peptone has been recommended by Miller and Raulston⁸ in the treatment of migraine. In resistant cases of both allergic toxemia and migraine I have used peptone with definite help, though in severe cases that have not had any relief from the elimination diets peptone has likewise been of little assistance. Because of the occasional severe general reaction obtained by the intravenous use of peptone, I have only administered it subcutaneously for the last two years, and I have found that one to two cubic centimeters orally every two to seven days give results comparable with those obtained with the intravenous method. The use of peptone is indicated when toxemia or migraine do not respond to dietary therapy or when it is impossible to remove all foods from the diet that are productive of mild sensitizations. The oral administration of peptone in one to two-gram doses three-fourths of an hour before meals has not taken the place of subcutaneous therapy though slight relief has occurred in a few cases.

Brown⁵ has recommended the use of pepsin and dilute hydrochloric acid as a method of control of food allergy. Sansum advises the use of citric acid and salol-coated pancreatin for the same purpose. In fact such therapy was suggested in the original monographs on food allergy by Barnathan²³ and Laroche, Richet and Saint Girons.² Recently Caulfield suggests the use of trypsin in thirty-grain doses with meals. My recent experience indicates that the use of trypsin or pancreatin in such large doses may help some of the mild symptoms. In my series, where stomach analyses seemed advisable in 41 per cent of the cases, free acid was uniformly present, making its additional use seem unnecessary. Moreover, it is certain that food proteins which produce severe symptoms within a few seconds to thirty minutes after eating cannot be so completely digested by pancreatin as to prevent allergic disturbances. However, the possibilities of such

* Author's original diets as published in 1928 have been slightly modified during the last year. Space does not permit the printing of suggested menus and explicit amounts of food for each diet. Such menus have already been published in the Western Hospital and Nurses' Review, Vol. 13, Nos. 1 and 2. More extended suggestions are to appear in the author's monograph on Food Allergy which is to be published in the next few months.

digestive therapy for the control of food allergy must be followed with an open mind.

Patients with these syndromes frequently discover that the daily use of physics or of enemas or the frequent use of colonic irrigations minimize their symptoms or prevent frequent recurrences. In my cases such therapy has not been necessary though I advise the use of mineral oil and agar or psylla seeds or occasional low saline enemas if constipation persists. I feel that much spastic constipation and mucous colitis are likewise due to food sensitization.

The use of biliary drainage as reported by McClure and Huntsinger¹⁴ in the control of migraine must be remembered. This method was not used in any case in this series because of satisfactory result obtained by elimination diets. In a few cases of migraine which were not controlled, biliary drainage was resorted to with no benefit. The possible help of bile salts in view of evidences of disturbed liver function, as mentioned previously in this paper, should be considered. For temporary relief, until dietary therapy is effective, aspirin, acetphenacetin or pyramidon in five or ten-grain doses up to four times in the twenty-four hours are of benefit. If necessary the use of one-fourth to one-half grain doses of codein sulphate in combination with one of the above drugs is warranted. The patient who has a severe idiosyncrasy to one of these coal-tar derivatives is not uncommon. The use of adrenalin, 1 to 1000 in 8 to 12-minim doses subcutaneously, has given spectacular relief in some patients, though the absence of such benefit does not rule out allergy as a cause.

CONCLUSIONS

1. Allergic toxemia due to food allergy is for the first time described in the English literature as a clinical entity of importance. It is not uncommon and is usually associated with migraine and gastro-intestinal allergy.

2. Migraine is best explained as an allergic phenomenon, and food allergy in my experience is the most commonly recognized cause of this condition. Its manifestations vary in degree and may be associated with transient nervous complications.

3. The treatment of allergic toxemia and migraine due to food allergy is carried out by my elimination diets modified according to the patient's history of food disagreements or by any positive skin reactions obtained on the patient. Good results demand strict adherence to the method described in my former articles.

4. The use of peptone subcutaneously has also been of benefit in controlling mild symptoms due to slight or obscure food sensitizations.

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DISCUSSION

V. G. ALDERSON, M. D. (3115 Webster Street, Oakland).—It is now generally accepted that many diseases are caused by sensitization of the body to some protein. Doctor Rowe's paper calls attention to a condition of allergic toxemia, due to food sensitivity, which is probably not uncommon but which is not being recognized. Doctor Rowe's elimination diets

in connection with a careful allergic history place an instrument in the hands of physicians for the diagnosis and treatment of this condition as well as other food allergies.

Due to the expense and technical detail involved in the study of allergy, it has been limited to a few. With simplified methods, more physicians will study allergic patients and a wider knowledge be gained.

When skin tests can be done in conjunction with trial diets, quicker and better results can usually be obtained. Better coöperation can be expected from patients who are frequently weary of dieting and welcome skin tests with new interest.

If skin tests are done for foods the intracutaneous method is more reliable than the scratch method, and is not dangerous when carefully done. I have found that skin tests give accurate information in most cases, although, as Doctor Rowe states, the skin does not always react when the individual is really allergic. Should skin tests be negative, repetition at varying intervals is advantageous.

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SAMUEL H. HURWITZ, M. D. (490 Post Street, San Francisco).—Doctor Rowe has listed a train of symptoms which are not uncommonly associated with many illnesses, notably those in which it is difficult to find any definite organic cause. Whereas there is little doubt that many symptoms such as Doctor Rowe has described have frequently masqueraded under false diagnoses, nevertheless it is true that it is not always easy by the methods at present available to demonstrate beyond question that such symptoms may in many instances arise from allergic causes. Doubtless one may, by the careful study of these patients, take out of the group of ailments previously classified under the diagnosis of autointoxication a number which belong to Doctor Rowe's group of allergic toxemias, and this applies also to a large group of patients who present themselves for headache of unexplained etiology.

However, in order that the term "allergy" may continue to be a definite descriptive designation of a pathologic state it is essential that we define its use. Some postulates must be laid down before one can, with reasonable assurance, maintain that a certain symptom complex is due to an allergic cause. We feel that the definition of allergy and its importance in the etiology of disease will be much clarified by adopting, whenever possible, the postulates of Cooke before assuming or proving that any protein or other chemical substance is a causative factor in a case of hypersensitivity. In brief these are: First, a history of contact by the individual in some way with the suspected substance in order to permit it to act as an etiologic factor; second, the demonstration of sensitization by a positive local reaction, cutaneous, intradermal or ophthalmic; and third, the reproduction at will of the original allergic manifestation on introduction of the substance either by inhalation, ingestion, or subcutaneous injection.

Two of these postulates, to be sure, are satisfied by Doctor Rowe's clinical observations. The patients for the most part gave a history of allergic manifestations in some members of the family, and secondly, the ingestion of the offending food protein was successful in many instances in reproducing the patient's symptoms. The difficulty of eliciting positive cutaneous or intradermal tests in instances of food allergy has been commented upon by many observers. Unfortunately, however, the train of symptoms which Doctor Rowe classifies under the designation of "Allergic Toxemia and Allergic Migraine" is somewhat vague and not so clean-cut in its clinical manifestations as an attack of bronchospasm or the symptom complex described under the name of "hay fever." It is this difficulty of reasoning from cause to effect that has made some observers dubious as to the existence of the clinical entity which Doctor Rowe has described. However, those who are studying allergic patients intensively must admit that clinical instances of the conditions which he has described doubtless

exist, but that our limited facilities frequently make a clean-cut diagnosis almost impossible.

Doctor Rowe is to be congratulated because of his perseverance and patience in the study of this complex and difficult problem in allergy.

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H. E. HENDERSON, M. D. (1421 State Street, Santa Barbara).—Doctor Rowe's interesting paper on allergic toxemia and food allergy in relation to migraine is a challenge to every internist and thinking physician. Allergy in general, and food allergy in particular, is assuming more and more importance in medicine as our understanding grows. There is no doubt in my mind that a certain group of patients complaining of an indefinite and obscure chain of symptoms such as described by Doctor Rowe are suffering from food allergy. Even more striking is the group of intractable "colitis" patients who do not respond to the usual methods of intestinal therapy. Many of these are really food-sensitive people and should not be considered incurable neurotics. The very indefiniteness and variability of the symptoms in each individual is perhaps our strongest clue toward a diagnosis. Skin tests are notoriously unreliable in these conditions, and negative reactions should not discourage us from using elimination diets and food trials.

Skin sensitization is much more marked during a quiescent period and, as a rule, should not be done during or just after an acute attack. This point is often overlooked by those unfamiliar with allergic reactions. In addition to skin tests and food trials a careful history is of utmost importance, as Doctor Rowe has pointed out. More attention should be paid to the patient's own statements regarding his food idiosyncrasies and, above all, a realization that food allergy is an entity, will go far toward solving many obscure and intractable problems.

Doctor Rowe's enthusiasm and persistence in this field are most commendable. There is still much to be learned, and this is best accomplished by stimulating wider study of the subject among the profession.

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DOCTOR ROWE (Closing).—The fact that migraine and certain types of toxemia which have puzzled physicians in the past and which I have described as a new entity under the name "allergic toxemia due to food allergy," as well as many gastro-intestinal disturbances including colitis, constipation, indefinite gastric symptoms and various pains simulating gall bladder, or appendiceal disease as well as ulcer are all commonly due to food allergy, must be accepted by the medical profession for the good of their patients. The bronchial and cutaneous allergies due to food as well as other types of allergens are more generally recognized.

As brought out in my contributions during the last four years, when reactions in food-sensitive patients are frequently negative the use of diet trial, therefore, is of great importance in suspected cases. The use of my elimination diets modified by skin reactions, if such are able to be carried out by the physician, will aid greatly in the discovery of such obscure allergies.

It is fortunate to have the confirmatory and constructive discussions from Doctors Henderson, Hurwitz, and Alderson. Doctor Hurwitz rightly wishes for the positive skin reaction in patients relieved on the basis of food allergy. However, the former dependence on such reactions explains in large measure, I feel, the long-delayed and important recognition of the many manifestations noted above. It must be realized, as Alexander has emphasized, that food allergy is usually a localized phenomenon. Immune bodies which cause the skin reaction may never be present in the skin, or immunization of the dermal structures may be present while sensitization of other tissues in the bronchio, gastro-intestinal tract or nasopharynx may be active. Food allergy, therefore, is essentially a clinical study which can be aided in certain cases by skin reactions. Its frequent occurrence in infancy and in adult life must be realized.

MILD MENTAL DISTURBANCES—PREVALENT CAUSES*

By THOMAS G. INMAN, M. D.
San Francisco

IT is quite generally believed that functional nervous disorders have markedly increased during recent years, though no authentic data are available in support of this belief. Physicians practicing in any branch of medicine always have had to deal with cases of mild mental distress which seemed out of proportion to the anxiety normally incident to the physical disturbances in question. Physical illness, even of slight degree, may be a new experience and may so suddenly change the accustomed relationship of the individual to his environment that new problems arise beyond his ability to solve. Hidden from the medical attendant, but disturbing the patient, lie concealed fears of disability and death, of economic embarrassment, and of concern for the welfare of dependents. Usually these minor difficulties pass away upon the return of health or are dissipated by the wise counsel of the physician, but occasionally the anxiety engendered may remain and require special treatment.

SOME CAUSAL FACTORS

Mixture of Racial Types.—A definite susceptibility to mental disturbance may arise out of the heterogeneous mixture of racial types which make up the population of this country. In the offspring of the union of dissimilar types there may be an unhappy blending of those archaic elements upon which much of our personality depends. There is occasionally found in these cases a reversion to type, the child bearing no resemblance in mentality to parents, brothers or sisters. These unfortunates live in a family environment to which they never become habituated nor in which they are ever understood. In a number of personal observations, complete adjustment did not occur until the patient left the family circle to live elsewhere.

Immaturity in Brain Development.—Immaturity in brain development at man's present evolutionary level may be responsible for a certain amount of mental instability. Variations, impossible in a state of nature, occur among civilized peoples and probably have much to do in causing those extremes of character so frequently observed. In our present civilization, the protection extended to aberrant and inferior individuals will increase the distance already existing between the two extremes of character and possibly divert the course of evolution into devious and precarious paths. According to Joseph Shaw Bolton,¹ "The greater the rapidity of our evolution and the plasticity of our higher organs the more numerous naturally are the variations above and below the average, the more common must be individual genius and individual mental deficiency and dementia."

* Chairman's address before the Neuropsychiatry Section of the California Medical Association at the fifty-ninth annual session at Del Monte, April 28 to May 1, 1930.

Modern Social System.—Many of the milder forms of mental disturbance have their immediate origin in the contradictory nature of our present social system. Changes of unusual magnitude have taken place in the industrial and economic life of this country. Opportunity for the exercise of psychomotor activity has reached a height never before known in the history of the world. Former luxuries are now considered necessities, some of them serving the purpose of giving expression to underlying neurotic tendencies. Many of our people must contend with a compelling desire to possess that which they cannot afford, a state of mind played upon by skillfully worded advertisements and catered to by a pernicious credit system.

Newspapers and Advertisements.—Among other common causes arising in the environment may be mentioned scare-line headings in the newspapers, the prominence given to sudden deaths from well-known diseases, the cunningly worded advertisements of quacks and promoters of patent medicines and cure-alls. Occasionally the thoughtless remark of a physician anent the height of the blood pressure or the presence of a heart murmur may fall upon fertile ground and start the patient off on a long period of unnecessary worry.

Economic Reverses.—A certain amount of mild mental disturbance will be found among those to whom changed financial and social conditions have brought poverty and loss of former prestige. They find themselves compelled to accept charity from others not always sympathetic and kind. They must rub elbows with the rough and uncouth. Of gentle birth and refined tastes, they find themselves out of place in this hurly-burly world and are unable to adapt themselves to new and uncongenial conditions. Of little use to them are the empty precepts of philosophy or the solacing injunctions of holy writ. They are the unhappy victims of one of time's grim jokes.

"for time and fortune

Wears out a noble train to beggary;
And from the dunghill millions do advance
To state and mark in this admiring world."

Speculation.—The excitement and depression incident to speculation take their toll of victims. Man is so occupied with those things which arise from present needs and desires that he finds little time in which to inform himself upon the history of matters he deals with in his daily life. From time to time we pass through periods of economic stress similar in origin and comparable in results to innumerable experiences in the past.

More than two hundred years ago, about the time of the collapse of the Mississippi scheme, a caricature appeared in France representing the Goddess of Shares in her triumphal car driven by the Goddess of Folly. Behind is an immense crowd of persons of all ages, sexes and conditions, clamoring after Fortune and fighting with each other to get a portion of the shares which she distributes so bountifully among them. In the clouds sits a demon blowing bubbles of soap,

which are also the objects of the admiration of the crowd, who jump upon one another's backs to reach them ere they burst. Right in the pathway of the car, and blocking up the passage, stands a large building with three doors through one of which it must pass if it proceeds farther, and all the crowd along with it. Over the first door are the words "Insane Asylum," over the second, "Hospital," and over the third, "Prison." It is unnecessary to point out the specific application to our own times. Men, it has been well said, think in herds, they go mad in herds, while they only recover their senses slowly and one by one.²

Effects of Other Diseases.—It is a common observation that the functions of the brain may be interfered with by disease processes existing elsewhere in the body. There is ready admission of this possibility when the intelligence factors are appreciably and definitely affected. But unstable emotional states may go for a long time under the impression that the condition is one of hysteria, nervousness, or just plain contrariness.

A sixteen-year-old girl suffered for more than a year with "nervous chills," exhaustion, sensitiveness to cold, and inability to keep up with her class in school. All of the above-named diagnoses were applied to her case and in addition, as a result of an intelligence test, she was said to be a moron. Aside from a slight secondary anemia no physical finding was ever discovered until an x-ray of her apparently sound teeth disclosed an abscess in the upper maxilla. One month after proper treatment she obtained employment, rose to a position of trust and rendered efficient service for many years.

A fifty-year-old woman had for fifteen years suffered from nervousness, vague pains in the back and limbs and a feeling as if ice water instead of warm blood flowed in her veins. There was lack of interest, loss of memory and a desire to do away with herself. She was confined in a hospital for mental cases conducted by a pseudoreligious cult. Fifteen grains of thyroid substance daily proved more efficacious than the uncertainty of divine intervention. Three months after beginning treatment she was quite well.

Are the mental symptoms evinced in cases of this kind directly dependent upon a toxic or chemical effect upon brain tissue or does the somatic disease only disturb the sense of well-being of the individual and, by removing restraining inhibitions, allow preëxisting conflicts to come into play?

If this is a debatable question in the foregoing examples the following case rests on more certain grounds.

A 45-year-old executive, stooping to take some papers from a lower drawer, had an attack of dizziness. Seeking medical advice and receiving no explanation for this and subsequent attacks, he was sent to a sanatorium for nervous diseases under the impression that he was a neurasthenic. Here he remained for three months. During this time the mental distress incident to the worry about himself and the uncertainty as to the nature of his affliction so overshadowed the primary symptoms that they were forgotten. Finally, a critical review of the history and an examination of the vestibular apparatus disclosed the nature of the trouble. He returned to work and, in spite of an occasional attack of vertigo, has had no further mental disturbance.

DIFFICULTIES IN THESE PROBLEMS

That human beings profit little from their own unhappy experiences, or from the experiences of others, seems to be as true of matters which concern their own personal well-being as it is of the external affairs of life. The man who takes his timepiece to the best repair shop and his dog to the best veterinarian he can find will for his own ills employ any remedy recommended by the first man he meets in the street. Neither of them knows the nature of the ailment nor would he understand it if he did; but, like the blind leading the blind, each seems totally unaware of the other's shortcomings. But this is no new condition. In his *La Médecine et les Médecins*, published in 1857, Peisse says, "An infallible sign that a science is not established is when it is still a kind of common property. My porter does not hesitate to diagnose a disease, to point out the cause, to prescribe the remedy, and to predict the issue. He considers it his right. This position of medicine has been the same for two thousand years."

Universal education, the panacea recommended for the cure of those social ills once credited to ignorance, has not yet fulfilled its intended purpose. It has been diverted from its true cultural aim into channels where it serves an unprincipled cupidity as faithfully as it once illuminated the humanities. To offset the evils developing out of this situation the relationship of the individual to the state and of the state to the individual have assumed new proportions. Paradoxical innovations in legislation are being tried whereby the freedom which education was expected to secure has been supplanted by drastic regulation. It need cause no surprise if above the mutterings of discontent we hear the words of Caliban,

"You taught me language; and my profit on't
Is, I know how to curse."

Some day the self-appointed reformer may learn that character cannot be advanced by legislative act nor can a discrimination in the niceties of human conduct be infused into a people by the mere stroke of a pen.

SUMMARY

While anatomical methods will aid in the estimation of those factors upon which intelligence depends, other methods must be called into service in determining the nature of those agencies which contribute to the emotional characteristics of the individual. To this end some form of mental analysis is necessary and under whatsoever name it may pass must be sufficiently complete for the purpose in hand. It must be granted that in any case of mental disturbance, mild or severe, the mechanisms which underlie the visible symptoms are more deeply hidden and of greater significance than might be surmised. But in many of the milder forms it is neither practicable nor convenient for the patient to undergo a lengthy course of treatment. It must often be sufficient to uncover the immediate cause of the mental un-

rest, explain its relationship to the present condition and by a number of constructive talks re-establish the former state of confidence.

In the study of even mild cases of mental disturbance new light is thrown on the causes of and peculiarities in human conduct. In normal persons the mechanisms which determine the flow of ideas are under control; the natural and acquired inhibitions are functioning in proper sequence and the emotions are held in check by a consciously acting intelligence. But with mental imbalance there is a lack of coördination between the intelligence and the emotions. Inhibitions are either overactive or cease to be the guardian sentinels of thought and conduct. The hidden springs which supply the stream of consciousness are uncovered and the motives which determine behavior stand out in bold relief. To the mental patient is well applied the words of Prospero,

"Thy nerves are in their infancy again,
And have no vigor in them."

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LATE SYPHILIS—TREATMENT WITH A SINGLE STRAIN OF MALARIA*

ANALYTICAL EVALUATION OF THERAPEUTIC RESULTS IN FOUR HUNDRED CASES

By ROSS MOORE, M. D.
Los Angeles

DISCUSSION by Henry G. Mehrtens, M.D., San Francisco; Walter E. Leonard, M.D., Los Angeles.

THE clinical course of syphilis after its secondary manifestations have disappeared is curiously vague and uncertain. Therefore the therapeutics of this period are necessarily in a corresponding state of conceptual chaos. It is therapy without clear foundational thought—treatment without adequate biological substratum.

STATISTICAL STUDY OF FOUR HUNDRED CASES

This analysis is an effort to think back toward physiological origins via malaria therapy.

Three hundred and fifty of the cases in this series were diagnosed paresis. Fifty of them were tabes or cerebro spinal syphilis.

Two hundred and thirty-four of the paretics were treated in Norwalk State Hospital between December, 1926, and December, 1929.

Dr. F. J. Van Meter, resident syphilologist, has made a statistical study of this series as of May 1, 1930—four months after the last treatment had been finished. He reports as follows: sixty-eight patients or 29 per cent improved sufficiently to be paroled or discharged; fifty-nine or 25 per cent improved markedly but are still in the insti-

tution; forty-one or 17 per cent are unimproved; sixty-six or 28 per cent died during or shortly after treatment.

In discussing these results Doctor Van Meter calls attention to the fact that remissions occur in only three or four per cent of untreated paretics and in six or seven per cent of those treated with arsenicals. Although statistics of this kind are unreliable things, yet Doctor Van Meter's percentages warrant the conclusion that at Norwalk at least, malaria treatment in paresis has been more helpful than other methods.

Throughout the world many thousand treatments of this kind have been given during the last thirteen years. Some investigators are enthusiastic in favor of malaria treatment. Others are conservative. None have condemned it wholesale. But the method cannot yet be said to have entirely proved itself. This it may do in the future. Again it may not. Even though finally discarded, malaria treatment will have been extremely useful in helping to clarify and advance anti-syphilitic therapeutics.

During this study of the effects of malaria in syphilis the need for a more scientific sense of human physiology in action against *Treponema*, has been keenly felt. Standard accepted therapeutic methods against syphilis are empiric in theory, or have no theory. This makes them inadequate in practice. They neither kill treponemic infection nor prevent recrudescences, a bitter and humiliating admission.

A theory of treatment is needed which has for its basis the physiology or physio-pathology of syphilis. This would be a live theory. The present theory, based upon symptoms and pathologic findings is a dead theory.

STAGES IN PHYSIOLOGIC PROGRESS IN SYPHILIS

So far as its reaction on human physiology is concerned, syphilis divides itself into five stages or periods, viz., primary and secondary syphilis as in the old classification, hidden syphilis, irritative syphilis and degenerative syphilis.

For use in this present study these periods may be sketched as follows:

Primary syphilis possesses but one lesion, the external evidence of that vigorous effort which physiological defense mechanisms are making to prevent generalized invasion of the body by *Treponema pallidum*. Defense mechanisms may hinder such invasion but seldom or never prevent it.

Thus general systemic invasion soon becomes a reality and the second period, called secondary syphilis, has begun. Its cutaneous, neural and other manifestations are the visible evidence that defense mechanisms are being forced to wage a desperate defensive warfare in every part of the body.

The gradual disappearance of these secondaries indicates that defense mechanisms have become strengthened gradually until a fighting ability somewhat near equal to that of *Treponema* has been attained.

* Read before the General Medicine Section of the California Medical Association, at the Fifty-ninth Annual Session, Del Monte, April 28-May 1, 1930.

When this equality is attained and has become stabilized, the third period called hidden syphilis replaces the second period. Hidden syphilis lasts exactly as long as defense mechanisms maintain their fighting equality with *Treponema*. However, during this entire pseudo quiescent period, burrowing, sapping, enervating syphilitic attrition never ceases.

After months or years, trouble breaks out again. Signs and symptoms now indicate that defense is crumpling and breaking before treponemic onslaught. It is the beginning of the fourth period, called irritative syphilis. This period lasts a long or a short time, depending on whether the patient possesses powers of resistance that are hereditarily great or small.

Sooner or later the period of irritative syphilis is crowded out by the fifth period, degenerative syphilis. Thereafter the clinical course of the disease is slowly materializing death.

For the sake of greater clarity, these five physiologic periods are restated in epitomized form as follows:

In primary syphilis, strong but inexperienced physiologic defense mechanisms try unsuccessfully to prevent a local treponemic infection from becoming generalized.

In secondary syphilis, stronger and more experienced defense mechanisms fight *Treponema* in all parts of the body, with considerable success.

In hidden syphilis, still stronger and more experienced defense mechanisms prevent for the time being the appearance or reappearance of all syphilitic symptomatology.

In irritative syphilis, defense mechanisms begin to show signs of exhaustion. New signs and symptoms then make their appearance.

In degenerative syphilis, defense mechanisms have become destroyed and are dead.

Primary and secondary syphilis constitute an inclusive classification called early syphilis. Irritative and degenerative syphilis are late syphilis. Hidden syphilis is a transitional period.

At some time during the transitional period of hidden syphilis a physio-pathologic turning point is reached. Previous to it, defense mechanisms are strong and able. After the transitional period they gradually lose strength and ability until death closes the scene. This is also a moment when a change of method must be made if therapy is to adequately meet new conditions. The kind and quality of therapeutic help required after the turning point is quite different from that needed before it. Afterward, the human mechanism requires support and revitalization above everything else.

THEORY OF THERAPY BY MALARIA IN LATE SYPHILIS

Does malaria treatment in any way meet this requirement? Does it support and revitalize failing defense mechanisms?

Statistics in general and those of Norwalk in particular seem to answer these questions in the affirmative, in so far as paresis is concerned. The following case appears to affirm it for tabes.

A fifty-two year old barber contracted syphilis thirty-two years ago. Lightning pains began sixteen years ago and thereafter a typical clinical picture of tabes developed in spite of well applied standard therapy.

Fifteen months ago this patient was given malaria treatment. Straightway his lightning pains disappeared and have not reappeared. He became physically a great deal stronger and lost much of his ataxia. For the last ten months he has been back at his trade, although still somewhat ataxic and quite devoid of knee jerks and pupillary reflexes.

It is reasonable to believe that in this case syphilitic irritation of the spinal cord has been negatived or neutralized or abolished by malaria treatment.

If space permitted, favorable results in many varieties of cerebro-spinal syphilitic involvement might be cited.

It is therefore possible to answer the above questions in the affirmative. Malaria treatment is able to support and revitalize physiologic defense mechanisms in many different types of late syphilis.

Granting that malaria treatment is effectual, how does it accomplish this feat?

Apparently it causes a decrease in syphilitic irritation, although the ultimate biochemical *modus operandi* by which it does this is unknown. Possibly there is some significance in the fact that the treponemic cause of syphilis is first cousin to the plasmodial cause of malaria, although the activities of these cousins, inside the body, seem very different. *Treponema* attacks sluggishly and ponderously. *Plasmodium* attacks violently and spectacularly. It thus results that physiologic defense mechanisms are stirred into much more immediately vigorous and aggressive action by *plasmodium* than by *Treponema*. Is it possible that antibodies formed by plasmodial energeticalness are more potent against *Treponema* than those formed by *Treponema* itself?

However this may be, one fact begins to be clear—malaria treatment is a distinctly physiological type of remedy. It apparently accomplishes its object by stimulating or aiding the natural defenses of the body to reassume their normal tasks.

Another question—

If malaria treatment has done so much for certain types of late syphilis, what other things may it be able to accomplish?

The answer is, that malaria treatment may be useful wherever there is gradually developing syphilitic weakness. This is a broad statement but a justifiable one. During all of irritative and degenerative syphilis, gradually developing weakness is present. The period of degenerative syphilis is included here, not because it is amenable to any form of treatment but because it is clinically inseparable from irritative syphilis. Only therapeutic test can disclose whether a given case is irritative syphilis or degenerative syphilis or a mixture of the two. Most cases which show fairly

completely developed clinical pictures of paresis and tabes are this kind of mixture.

It would be somewhat daring to say that malaria treatment should be used in hidden syphilis. It would be more daring to say that it should be used in secondary syphilis. It would be most daring to say that it should be used in primary syphilis. There is no present warrant for such statements. But there is not only warrant but sound common sense in the idea that the use of malaria treatment should be considered whenever and whenever physiologic defense mechanisms give signs of failure in their struggle against syphilis.

Compare the use of this physiologically supportive remedy to the fatuous and futile drenching of slipping patients with synthetic, metallic proprietaries.

VALUE OF COMBINATION OF OLD AND NEW THERAPY

Other questions present themselves in this connection. For example, what is the best way to combine old therapy with new therapy in late syphilis, or should they be combined? How many malarial paroxysms should be allowed? How soon, if ever, should malaria treatment be repeated? and so forth.

Answers would be interesting to work out but would carry this discussion too far afield from its primary object. Enough has been said to focus attention and stimulate interest in the physiologic reactions of the human body when invaded by *Treponema*. Clear thinking along this line will result in better engineered anti-syphilitic treatment.

Four hundred cases are not enough to prove a point. Neither do forty-odd months of experience with a particular method of treatment prove its quality. Nevertheless, when those cases and that method are reviewed before the limitless background of historic syphilology, a conclusion, an impression and a concept, are left in mind.

The conclusion: Malaria treatment with the occasional aid provided by older therapeutic procedures, is the best method at present available for combating late syphilis.

The impression: The physiologic aptness of malaria treatment in late syphilis gives the therapist a sense of solid satisfaction and accomplishment which has never before been experienced in connection with the older methods.

The concept: In order to be adequately understood, late syphilis must be conceived of as a period in which physiological defense mechanisms are fighting an uncertain and apparently a losing engagement with *Treponema*. Therefore, the supremest possible therapeutic accomplishment of the moment is to adroitly support and revitalize these struggling defense mechanisms in this their final life and death combat.

1930 Wilshire Boulevard.

DISCUSSION

HENRY G. MEHRTENS, M.D. (Stanford University Hospital, San Francisco).—Dr. Ross Moore's paper is exceedingly timely. We need to be continually re-

minded that we have not the faintest notion of how our arsenic, mercury, or bismuth affects the spirochetes. Neither have we any accurate method of judging just what dosage is helping the organism in its fight with the spirochetes, and what dosage may actually be handicapping the patient in his struggles. We must be ever on the alert to utilize our best clinical judgment to see that we do not overwhelm the bodily defenses with our medications. That malarial treatment helps neurosyphilis not amenable to the ordinary intensive antiluetic medication must be admitted by all who have had any considerable experience with the method. There is some doubt in my mind that the malarial treatment will be our ultimate solution of the problem. At Stanford we have utilized the fever produced by baths—104 degrees to 106 degrees Fahrenheit mouth temperature—with results comparing well with those we secured with malaria. Other clinics have used fevers produced by electricity.

Fever alone may not be all that is necessary; other factors may have to be added. We are convinced that the ordinary antiluetic medication is far more effective in the presence of fever. But whatever may be the method of treatment, we are now in possession of an additional means of attack upon the spirochete, as Dr. Ross Moore has so well pointed out, in harmony with the physiological defenses of the body. It will not only achieve clinical results not obtainable by the older methods, but may be used to reinforce and amplify intensive antiluetic therapy. We may anticipate many further advances along these lines.

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WALTER E. LEONARD, M.D. (520 West Seventh Street, Los Angeles).—Doctor Moore is to be congratulated for bringing to our attention the physiological basis underlying the treatment of late syphilis by malaria therapy.

To review briefly, fever may be induced by various substances other than bacterial or parasitic toxins, viz., drugs such as cocaine, certain purins, sugars and diuretics. In these conditions, the fever causes a breaking down of tissue cells and increases the osmotic pressure of their protoplasm, and water is therefore attracted into them from the blood, resulting in an increased concentration of the circulating blood. Whereas, an upset of the heat regulating centers of the brain by external heat or electricity will also cause a rise in temperature without change in the concentration of the blood.

Reasoning from the above physiological basis, there seems to be no foundation for the thought that malaria therapy in late syphilis is in any way specific and possible improvement might be attained by other substances.

Persistence in the use of certain synthetic, metallic proprietaries are no doubt indicated in the first stages of syphilis, serving to stimulate the defense mechanisms of the body against the generalized invasion of *Treponema pallidum*. This defense mechanism may be maintained for years under careful management, but once degenerative changes have occurred the method of attack must be changed as indicated in Doctor Moore's paper.

IMMUNIZATION AGAINST DIPHTHERIA WITH TOXIN-ANTITOXIN*

By H. E. THELANDER, M.D.
San Francisco

AT the health center conducted by the American Association of University Women, located on Oak Street, San Francisco, it has been a part of the routine the past several years to immunize baby patients against diphtheria, and to vaccinate against smallpox, before graduating the child to the runabout class at the age of eighteen months.

* From the department of pediatrics University of California and Children's Hospital. Accepted March, 1930.

The toxin-antitoxin has been supplied by the Board of Health from the Cutter Laboratories. It has been obtained fresh and kept in the icebox when not in use. The immunization has been done in the usual manner of three injections of one cubic centimeter each, at weekly intervals, on children seven months or older.

Two years ago it was decided to start a Schick clinic at the center. Since then Schick-testing has been done the last Tuesday of each month and read on the following Friday, that is, at an interval of seventy-two hours. The Schick material has also been obtained from the Board of Health. One-tenth cubic centimeter of toxin (1/50 M. L. D.) has been injected intradermally into the right forearm, and one-tenth cubic centimeter of control material into the left. The readings have been recorded as one, two, three, and four plus; one plus representing a faint reaction over that of the control and a four plus a severe reaction such as is seen in a nonimmune person, two and three are the grades between. I did the Schicking and the reading of the reactions myself, and my interpretations were checked by Dr. W. H. Kellogg and Miss Stevens of the State Department of Health.

SOME TABLES FROM THE ANALYSIS

An analysis has been made of the cases Schick-tested up to January 1, 1930. This preliminary report on the results of immunization against diphtheria with toxin-antitoxin at a "well baby" health center is presented in order to stimulate interest in the present status of diphtheria immunization.

The ages of the children tested varied from fifteen months to six years. Several of the older children had had their injections of toxin-antitoxin at other places than our clinic.

The results of the 164 cases are recorded in Table 1.

TABLE 1.—Reactions in Total Series		
Reactions—	Cases	Per cent immune
Negative	115	70.1
One plus	17	10.4
Two plus	27	16.1
Three plus	3	1.8
Four plus	2	1.2
Total	164	

Only 70 per cent of our group were negative, and even if those giving a one plus reaction become immune in a month or two it still raises the figure to only 80.5 per cent.

Table 2 was arranged according to the interval elapsing between immunization and Schick-testing to see if a longer interval than six months gave a higher percentage of immunes.

TABLE 2.—Interval Between Injections and Schick Test		
	Cases	Per cent immune
Six months	81	70.3
Seven months to one year.....	35	83.
Over one year.....	36	66.

The cases over one year include the older children, many of whom were not given the injections at our clinic. This probably explains the low percentage of negatives in this group. Since, if there is no record of the injections, there is always the possibility that they were not given or that the series was incomplete or poor material used.

The first two figures represent our own group, and the longer interval of seven months to a year gives a considerably higher per cent of Schick negatives than the six-month period.

In the clinic, immunization is started at a younger age than is the usual practice in a private office. Table 3, therefore, was arranged according to the age at which the injections were given.

TABLE 3.—Age at Which Injections Were Given		
	Cases	Per cent immune
Under ten months.....	51	80.4
Ten to fifteen months.....	42	88.1
Fifteen months to two years.....	29	72.
Over two years.....	39	43.6

The results are interesting but the cases too few to be very significant. We hope to report later on a larger series. In this table also it will be noted that the older group, many of whom had their injections outside the center, drops very low in its percentage of Schick negatives.

In our private practice we average 86 per cent Schick negative after three injections of toxin-antitoxin.

REPORTS OF OTHER WORKERS

For comparison I wish to give a few figures from other workers. Zingher¹ in 1921 stated that 95 per cent of Schick positives become negative by toxin-antitoxin injections. Schröder and Park,² in 1059 cases immunized and Schick-tested, at the end of six months found 88 per cent were immune. The Dicks, 1929, found that on Schick-testing adults who had had three injections of toxin-antitoxin at other institutions, only 24 per cent were immune. They therefore gave five injections—the first, one-half cubic centimeter and the remaining four, one cubic centimeter each at weekly intervals, and then had only 85 per cent Schick negative. The report of the League of Nations³ Survey in 1924 gives 80 to 90 per cent as the number of Schick negative after toxin-antitoxin injections.

The figures given in this paper also fall within these limits of 80 to 90 per cent. These figures I think represent more accurately the present percentage of children in private or well-controlled groups rendered immune by three injections of toxin-antitoxin than the earlier figures given by Zingher.¹ Whether or not this lower figure is due to methods of preparation or whether other factors are concerned is beyond the scope of this paper to discuss. In less well-controlled groups the figure undoubtedly is much lower.

EFFECTIVITY OF TOXIN-ANTITOXIN

To further substantiate the evidence that our toxin-antitoxin immunization is not so effective as it should be, and is generally assumed to be, is the fact that at the Children's Hospital the past year there have been forty-four cases of diphtheria with five deaths (11.5 per cent mortality), and of this group, eight cases with one death (12 per cent mortality) had had toxin-antitoxin six months to two years previously, in one case two series. None, however, had been Schick tested.

The occurrence of these cases the past year was surprising and disconcerting, because it is a

larger number than has occurred in all the previous years at the hospital. It may represent an increase in virulence of the organism. An epidemic of severe diphtheria would be the crucial test of the effectiveness of our present methods of immunization.

It is the experience of all using toxin-antitoxin that local or general reactions except for very slight ones are rare. Slight induration at the site of injection or a little brawny desquamation occurs at times. Therefore when we had eight children from the center report back last fall because of severe reactions, an immediate investigation was started. The reactions all occurred from one lot of toxin-antitoxin. The lot number was referred for investigation. In careful experimentation, carried on by both Doctor Kellogg and Doctor Foster of the Cutter Laboratories, it was found that this lot of toxin-antitoxin had undergone a certain degree of dissociation and showed an increase in toxicity over the original stocks. Furthermore, this apparently had occurred under circumstances of normal storage and use, and not as a result of freezing as has been the case in other reported instances of dissociation.

SENSITIZATION TO HORSE SERUM FROM
TOXIN-ANTITOXIN

There is one other point I wish to mention at this time, namely, the question of sensitization to horse serum by the use of toxin-antitoxin. There is considerable disagreement in the literature. The reports of Hooker,⁴ Waldbott,⁵ and Stewart⁶ indicate that a sensitization does occur, whereas those of Bauer and Wilmer,⁷ and Spicer⁸ contradict it. Park's⁹ investigation led him to the conclusion that a very slight sensitization may occur. Most of the work is based either on skin tests before and after toxin-antitoxin or on reports of serum diseases occurring on the injection of horse serum for scarlet fever, tetanus, meningitis, and pneumonia in children having had previous toxin-antitoxin. The case reports are not well controlled since frequency of serum diseases varies with different preparations of horse serum and undoubtedly is higher with scarlet fever and tetanus antitoxin than with diphtheria antitoxin.

SUMMARY OF SERUM REACTIONS

A summary, therefore, of the serum reactions in a group of cases receiving diphtheria antitoxin after toxin-antitoxin injections and a control group receiving the same type of antitoxin but without previous toxin-antitoxin is given in Table 4.

TABLE 4.—*Serum Disease, With and Without Previous Toxin-Antitoxin*

Toxin-antitoxin	No. cases treated with diphtheria antitoxin	No. with serum disease	Per cent
No previous toxin- antitoxin	169	15	9
Previous toxin- antitoxin	12	12	100

In a series of 169 cases treated with diphtheria antitoxin who had not had previous toxin-antitoxin there were fifteen cases of serum disease, or 9 per cent. All the reactions came after five to eight days' incubation and were mild and tran-

sient. In twelve patients receiving diphtheria antitoxin who had had previous toxin-antitoxin, twelve had serum disease, one other patient died in forty-eight hours after treatment or before serum reaction necessarily manifested itself. The incubation period of the serum sickness was often very much shortened, occurring as early as twelve to twenty-four hours after the injection in five cases. In one case the child had a marked urticaria forty-five minutes after the preliminary cutaneous test and one injection of one-half cubic centimeter subcutaneously; five days later he had a typical serum disease. The duration of serum symptoms lasted longer; in two patients severe urticaria recurred with short intermissions over a period of ten days. Symptoms, especially the urticaria, were very annoying. Fever and skin manifestations were the most common findings, and painful swollen glands and joints came next.

In none of these cases did we feel that careful administration of antitoxin was fraught with danger and in no case were the symptoms those of acute anaphylactic shock, but an undoubted sensitization had occurred.

POSSIBLE CAUSES OF NONIMMUNIZATION

Since both by the Schick reaction and the incidence of diphtheria in immunized children it is evident that a high percentage of children are susceptible to diphtheria after the toxin-antitoxin injections. I wish in closing to mention a few possible causes for this high percentage of non-immune.

1. The toxin-antitoxin now in use may be less potent than that used by Zingher and other earlier workers. Reactions from injections discourage the procedure, and to avoid such reactions it is possible that the mixture is too weak to be effective.

2. The material deteriorates when kept at room temperature or unduly exposed to light. When placed in the hands of a large group of workers, many nonmedical, it is possible that deteriorated material is being used in some centers. Since the results are not checked by Schick tests, this is not likely to be detected or corrected.

3. On Schick-tested individuals errors may occur due to deterioration of toxin or to improper injection of the material; the latter is especially apt to occur in young children who resist the procedure and whose skins are thin and intradermal injections difficult. Unless one is fully aware of the significance of the test it is easier to let the child go with a first attempt even though unsatisfactory than to struggle to repeat it. Another source of error lies in doing single Schicks. If a dozen or more are done at one time, usually one or more positives occur which check the potency of the material.

4. Finally, a certain percentage of individuals are highly refractory to immunization, and this group instead of being partially protected by a series of toxin-antitoxin, as is generally assumed, may be individuals particularly susceptible to diphtheria.

In few diseases has so satisfactory advancement been made as in the treatment and prevention of

diphtheria. If present results are not so good as early investigations warranted, a reëxamination of our methods is indicated.

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RURAL OBSTETRICS*

SOME COMMENTS ON ONE THOUSAND DELIVERIES

By J. H. PECK, M. D.
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DISCUSSION by T. B. Beatty, M. D., Salt Lake City; Ralph J. Thompson, M. D., Los Angeles; Lyle G. McNeile, M. D., Los Angeles.

SOME of the lay journals of the United States seem to be whipping themselves into a frenzy over the poor expectant mothers. The contributors to these lay publications elaborate on the great danger the mothers go through, the enormous cost of bringing the new citizens into this world, and according to most of these writers these faults are largely laid at the feet of the doctors. Some medical writers, by way of variety, blame the general practitioner for all of it.

If these contentions are true it is time we took stock, for there is a wide variation between present reported, and ideal mortality rates. With this thought in mind, I have gone over my own and also the obstetric records of my associates, Doctors Marshall and Aldous, for the last ten years. In this paper I wish to submit our statistics in proof that the country woman is not so badly off as she has been pictured, and that the country doctor should not be blamed for all of the bad results in obstetrics.

SCOPE OF THIS ANALYSIS WHICH INCLUDES ONE THOUSAND OBSTETRICAL CASES

This paper will present a discussion of home delivery procedures, meeting obstacles that come up under such conditions, with particular reference to actual experience in what might be called a cross section of the general population of a state presenting social and economic environments such as are found in Utah.

Number of Patients Included in This Analysis. This report covers one thousand deliveries, in which series there was the loss of one mother. The patients who required hospitalization are included, though we did not do the work of actual

delivery. There were five such patients who were sent to the hospital.

Complications.—One patient died because of premature separation of the placenta at eight months, there being no dilation and the patient being pulseless when we saw her. There were two complete lacerations in spontaneous vertex deliveries, blotting paper type. There were three in breech deliveries, all primiparae. Four with satisfactory repair, one with some sphincter unreliability. Two sections were done in women with grossly deformed pelvises. Two patients with severe infections were sent to the hospital, one of the patients having a pelvic abscess and the other a septic type of infection; both patients recovered. One antepartum fever patient and one preëclampsic patient were sent to the hospital, but each had a normal puerperium and a live baby. There were twelve patients who required uterine packing for control of hemorrhage. Five patients had breast abscesses in the first six weeks after delivery.

There were no deaths from abortions or miscarriages in our experience, but we have not included such complications in this report, as we wished to record statistics for only full-time patients.

As near as I can judge, 10 per cent of the patients required versions, forceps, or other obstetrical operations. I have no record of morbidity among these one thousand patients, but think about 75 per cent of the patients could be so included if we took a temperature of 99, or a pulse over 80 as the deciding factors.

CONDITIONS UNDER WHICH THESE WOMEN WERE CARED FOR

With the exception of five hospital patients already noted, these patients were delivered in home surroundings, such as in homesteaders' dirt-floored cabins, or in Japanese boarding houses, or wherever we found them. All races except negroes seemed to be included, for a smelter mining town draws all classes and types of workers. These patients were scattered over one hundred square miles of Tooele County, but most of the patients lived in Tooele, which is a community of about five thousand population.

We have never been called upon to treat a patient with eclampsia.

There is a scale in our office and each woman was weighed, and a urine specimen was examined every three weeks up to the seventh month, then every ten days. This work was done by the office nurse. If a patient showed any abnormality, she was told to wait for examination by one of the doctors.

The usual examination was made when a patient first called at our office. Her normal weight was ascertained; and if she added more than twenty-five pounds to that weight before her delivery time arrived, she was politely told by the nurse that she need not return, as she had broken her contract with the doctors. Under such conditions we found that the patients were generally

* Read before the Salt Lake County Medical Society, Salt Lake, Utah.

back in a week with the necessary poundage practically off. We have never lost a patient by this method, but have gained a good many through the advertising which a fasting primipara broadcasts. Because of the high incidence of goiter in Utah, these patients were given iodine all through pregnancy and were warned against sexual intercourse after the sixth month, and given such other advice as seemed called for in special instances.

SPECIAL PREPARATIONS FOR DELIVERY

Two weeks before delivery each patient sent to our office a bundle, consisting of one sheet, three diapers, one pound of cotton, and five yards of gauze. The cotton and gauze were worked up into vulvar pads and packed in a paper sack so that when one was removed it was only handled in one place, and the side so handled was placed away from the vulva. The whole bundle was wrapped in paper and placed in the office sterilizer and kept at fifteen pounds pressure for thirty minutes. The sterilizer used was a thirty-dollar national type, and could be used on a hot plate, a heating stove, or a gas jet. The bundle was labeled and put in a storage room in our office, and if not used at the time expected, it was re-sterilized. This work was done by our office nurse.

At the time of delivery we were accompanied by a trained nurse if one was available; if not, by some handy woman. If the nurse attended, the patient was charged \$5 extra for her services.

We carried in addition to the usual rubber gloves, gown, etc., one pair of short and one pair of long-armed rubber gloves, which had been dry-sterilized; some J. & J. uterine packing strips, and several pads of sterile sponges which were prepared by our office assistant. If the patient was a primipara, she was examined per rectum and, if labor was not progressing too fast, was given one-eighth grain of morphine in an H. M. C. tablet, in a two cubic centimeters of 50 per cent magnesium sulphate solution. This treatment usually insured us all a peaceful night, and we were practically certain that the head would be resting on the perineum when the doctor arrived six hours later, or sometimes in the bed, if we were a little slow in starting our automobile. The patient was prepared at the first visit by the nurse and gloves were boiled, so we lost no time upon arrival. In immediate preparation for delivery the patient was shaved as gently as possible. The vulvae were painted with a two per cent mercurochrome in 50 per cent alcohol. We did not wash the vulvar tissues, no matter how dirty, because of the danger of infecting the vagina with dirty water.

METHOD USED IN THE DELIVERIES

An ordinary Kelly pad was placed under the woman, with ten or twelve thicknesses of newspaper over it, so that if the bag of waters broke the bed would not be soiled. When the head appeared at the vulvar orifice, fresh papers and a sterile diaper were placed in the pad and a sterile sheet was draped over the woman; and another

sterile diaper was placed on some papers on the other side of the bed within easy reach for the reception of the baby. Chloroform was used exclusively on account of the frequent close proximity of heating stoves, and we gauged the amount of chloroform used by watching the drops poured on the mask. We tried rectal anesthesia and gas, but have almost given them up because of the extra attendance necessary to make them successful, and because a blue baby is hard to explain to others when it is shown in the home of the patient. When the labor was rapid, we also used chloroform while the head was passing through the cervix, in order to avoid cervical tears. When the head was about ready to deliver in primiparae, we did a double lateral episiotomy of only one-fourth inch depth through the skin and mucous membrane, which gave us much more room at the outlet. The small size of the episiotomy made unnecessary the use of stitches. The head was delivered under complete anesthesia. A hypodermic injection of pituitrin was administered to all patients at once.

When the baby was delivered it was placed on the sterile diaper, the cord was tied, etc., and the infant was taken away from the bed. A slop jar was placed near the foot of the bed, and an ordinary china cup, which had been boiled, was placed in the pad to catch the discharges from the vulvae. These were dipped up and poured in the slop jar, thus giving us an accurate check on the amount of blood lost. After an interval of fifteen minutes, a newspaper was placed over the top of the slop jar and the placenta was delivered, if ready, and was placed on the papers. This procedure broke the sterile technique, because both hands were now contaminated. After this procedure, the fundus of the uterus was held for another fifteen minutes, the woman meanwhile having been given a dram of ergot by mouth. If any other work was indicated, such as stitches, or arresting of bleeding, the extra pair of dry sterile gloves were used.

After we were sure of the postpartum action of the uterus the gloves were removed and the baby's eyes were treated with a one per cent silver nitrate solution and the cord was inspected. The attending doctor's gown and mask were clean but not sterile (short-sleeved gowns being used). The nurse usually had the baby dressed by this time, and if she was an untrained helper she was shown how to apply a vulvar pad, without contamination, and was instructed in the usual method of cleansing the vulvae without the use of washrags. As helpers or assistants we insisted on having women who had been trained by ourselves, or women who knew absolutely nothing about deliveries, for we found a little learning to be a dangerous thing.

Laundry was a real item in this work and in most instances two diapers and one sheet were the extent of it, which created a good impression on the housekeeper.

The mothers were up on a back rest the second day and were permitted out of bed when the

fundi could no longer be felt. The mothers were given instructions to exercise extensively in knee, chest, and monkey-walk positions. Breasts were left entirely alone, except for binders, and exposed to air as much as possible and bathed with boric acid solution before and after nursing. The importance of a postpartum examination was stressed, both for the benefit of the patient and also to permit us to check our results at the sixth week. And last, but not least, at that time it was a good occasion to settle the account for professional services which had been rendered.

COMMENT

We did vaginals of course, when necessary, under the best technique possible; and used forceps if the progress of the head was arrested for an hour, as we preferred forceps to pituitrin, believing that women are better off than to have the presenting parts pound away for hours until the mother is completely exhausted. All perineal tears were sewed up at once, but we never touched a cervix except to examine it when persistent hemorrhage was present.

I might add, considering the great cry which is nowadays made about the cost of medical care, that the charges per baby (including nursing, doctor, housekeeper, and incidentals), rarely exceeded the sum of \$65.

CONCLUSIONS

On the subject of obstetric practice in rural communities such as I have described, I have arrived at the following conclusions:

Every young physician starting to do general practice, and particularly obstetrics in rural communities, should be associated with an older physician who has had a large experience along that line. I feel that my association with older men in my early years of practice was of inestimable value to me; and in turn I have been able, I hope, to counsel the young men with whom I have been associated to their advantage, because I believe that even our present-day system of a general intern year does not give sufficient preparation for this kind of work.

Any country doctor, if he is practicing obstetrics because he likes the work (and not because he must in order to hold his families), can show results in low mortality rates that will measure up most favorably to the rates in general hospitals. For, as I see it, other things being equal, a woman's own bed is not at all a bad place for her in which to have a baby.

DISCUSSION

T. B. BEATTY, M. D. (Health Commissioner, State of Utah, Salt Lake City).—Doctor Peck is to be congratulated on the remarkable showing set forth in his report of one thousand deliveries with a single maternal death. The results are the more striking when the statistics of maternal deaths in Utah are taken into consideration. The official records of the State Board of Health show that the average urban death rate (cities exceeding 10,000 population) for the five-year period, 1918 to 1922 inclusive, was 9.8 per 1000 live births. For the five-year period, 1923 to 1927 inclusive, the rate was 7.5 per 1000 births. The

rural maternal death rates covering the same periods were, 1918 to 1922 inclusive, 6.4, and 1923 to 1925 inclusive, 4.2, which was the lowest rate in the United States.

There is certainly food for thought in the comparison. Doctor Peck seems to have solved the problem of making childbirth safe for mothers in rural districts. His technique is rational and leaves little to criticize, as proved by the results. While it must be admitted that conditions in a well-conducted maternity hospital are more convenient and favorable for safeguarding the mother, Doctor Peck has demonstrated that it is not essential, and that the most important factor is a qualified medical attendant and the proper technique. I question whether the average general hospital affords as favorable conditions as home care in the hands of a competent obstetrician.

In my opinion the educational activities in behalf of maternity and infancy that have been carried on by the Utah State Board of Health for a seven-year period, aided by funds received from the federal government, have been a distinct factor in the 35 per cent reduction of the rural maternal death rate. Many expectant mothers have been reached by monthly letters covering advice appropriate to each month of pregnancy, in which the importance of early consultation with the attending physician and proper hygienic measures have been stressed.



RALPH J. THOMPSON, M. D. (College of Medical Evangelists, 312 Boyle Avenue, Los Angeles).—Doctor Peck's article on rural obstetrics is most interesting, and his technique of handling these cases in the homes good. Apparently the end results measure up favorably with those of any well-equipped and organized hospital.

One of the best parts of this paper is the results obtained from the regular routine prenatal care. The fact that they have not treated a single case of eclampsia in the past ten years is without question due to these periodic examinations of the urine, and careful weighing of each patient, with the proper instructions as to diet.

The author's description of the special preparations made for each delivery in the home and the careful technique followed is surely responsible for his low morbidity record. The anesthetic used exclusively being chloroform on account of the close proximity of the heating stoves in the home is a good practice, although I believe ether for obstetrical anesthesia would probably be just as safe an anesthetic if properly handled, even under these conditions. I believe Doctor Peck is right in considering that rectal anesthesia requires extra time and attention, and I believe that this type of anesthesia should not be given to the patient in the home unless a skilled attendant is present to watch the progress of labor. The double lateral episiotomy of one-fourth inch depth which he uses in primiparae no doubt prevents deeper lacerations, but I believe the tissues should be approximated by the proper sutures.

I would consider immediate care of the baby's eyes of most importance, and this can be done in every case, even before the cord is ligated, while the child is still on the bed, or across the abdomen of the mother. As the usual custom is to wait for the pulsation of the cord to cease before it is ligated, it is well to properly cleanse the nose and throat of the child of all mucus and treat the eyes immediately.

As Doctor Peck's paper did not deal with infant mortality, we are not able to say what injury the child suffers by the hypodermic injection described. One would naturally expect to find not infrequently rather deep lacerations of the mother and possibly an asphyxiated child in the bed, if handled in this way.

Doctor Peck is to be highly complimented on this very good paper, and were all maternity cases in the homes cared for in as careful a way there is no question but that the results of these deliveries would measure up very favorably with those of any of the general hospitals.

LYLE G. McNEILE, M. D. (Director Los Angeles City Health Department Maternity Service, Los Angeles). This paper reports a series of patients delivered in the home, not under favorable conditions, but nevertheless with an extremely low morbidity and mortality. The results are an example of what can be done in rural obstetrics. The author and his associates have carefully considered every modern discovery and aid which is commonly accepted, and with great ingenuity and common sense have adapted them to the conditions under which they work. This is a paper which can be read with advantage by any practitioner who practices obstetrics.

The Los Angeles Maternity Service, an out-patient obstetrical service coöperating with the Los Angeles City Health Department and organized for the purpose of caring for needy women in their own homes, operates under practically the same conditions. Doctor Peck has emphasized routine urinalysis, and the prevention of too rapid gain of weight during pregnancy as the greatest factors of prenatal care. We feel that in addition to these very important measures the blood pressure should be taken at each regular visit. We believe that a Wassermann test should be done on every obstetrical case. Doctor Peck has not stressed the necessity of a complete physical examination at the first visit. The time consumed in a careful examination of the nose, throat and teeth, heart, lungs and pelvis is small as compared to the satisfaction in "picking up" those focal infections which are probably the most important factors in the etiology of certain toxemias of pregnancy, cardiac and lung conditions which are adversely affected by pregnancy, and pelvic conditions which are likely to seriously affect the course of labor or the puerperium. The author points out that it is absolutely essential that the patient be seen at regular frequent intervals during pregnancy. It is extremely bad practice to fail to insist that this be done.

Doctor Peck in his technique has provided for sterile supplies for every patient. We furnish similar supplies in copper containers, which are cleaned, refilled and resterilized when used. We do not believe that the mercurochrome used in Doctor Peck's preparation has any effect because of the large amount of surface fat on the tissues of the vulvar region. Careful observations and controlled cases have demonstrated to our satisfaction that a 3½ per cent tincture of iodine preparation, sponged off with iodine-alcohol, is more satisfactory.

While there is a widespread feeling in the United States against the use of chloroform, I feel that its danger has been greatly overestimated. It should not be used if there is any evidence of toxemia, or in the presence of cardiac or renal complications. I agree most heartily with Doctor Peck that, except under unusual conditions, pituitary extract should not be used before delivery on account of the danger of injury to both the baby and the maternal soft parts.

In the United States twenty-five thousand women die annually from the results of childbirth. Competent observers believe that the basic method used to reduce this high mortality must be early complete examination and supervision during the whole period of pregnancy combined with conservative and aseptic care during labor and adequate after-care. The Los Angeles Maternity Service, caring for poor women in their own homes, under the most adverse conditions, during the first ten years gave prenatal care to 14,155 patients and delivered 7285. The maternal mortality was one death in 910 deliveries. The infant mortality was one death in twenty-three deliveries (this including all stillbirths, and all deaths during the first ten days). All premature babies from the fifth month of pregnancy were included. The technique and methods used were very similar to those described by Doctor Peck.

PEPTIC ULCERS—DIAGNOSIS AND TREATMENT*

By PHILIP KING BROWN, M. D.
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SO much direct and indirect criticism of medical treatment of peptic ulcers has been indulged in recently that I wish to point out the confusion which has arisen over the misuse of the term "medical treatment," and to show, from the statistical studies of peptic ulcer treated in the Southern Pacific Railroad Hospital, that when properly carried on, medical treatment of uncomplicated ulcer is the method of choice; and, on the other hand, that many of the complications cannot be considered amenable to treatment by any method but surgery. The important point in the situation is the matter of complete diagnosis and a clinical investigation into the part played by the complication in preventing cure or contributing to recurrence.

ETIOLOGY

There is no direct proof of the etiology of chronic peptic ulcer in man. It has not been difficult to produce acute ulcer by experiment in animals and, although these ulcers are quite unlike those found in man, the presumptive evidence is full of suggestion as to etiology of chronic ulcers in human beings.

In 1903 Lorenzi noted hemorrhage in gastric mucous membrane in animals whose pneumogastric nerves were sectioned below the diaphragm, and if the animals survived over twenty-four hours, mucous erosions were found. Sarlta later showed that adding three per cent hydrochloric acid resulted in these erosions becoming ulcers.

Van Yzeren in 1901 reported such pneumogastric resection in twenty rabbits, with the occurrence of chronic pyloric ulcer in ten. Seven of the remainder died within five days, whereas ulcer developed in the earliest of those who survived, in seven days.

Ophüls of Stanford repeated these experiments on thirty rabbits and found ulcer developing in one rabbit after twenty-four days. The twelve examined before that showed no ulcer, whereas one-third of those examined after twenty-four days had ulcers.

More recently, Singer¹ has discussed injury to the vagus as a cause of duodenal ulcer and the rôle of affections of the vagus in the development of gastric ulcer.

Rodov² has presented an illuminating discussion of the biological relation of gastric ulcer and the vegetative system. Roller from his work in Ortner's clinic confirms Pollak's findings of ulcer as a sequence to vagus disease in the course of chronic encephalitis and reports ulcer from vagus inflammation from proximity to tuberculous mediastinal glands, in the gastric crises of tabes where it is common, and in a case of in-

* From the records of the Southern Pacific Hospital, San Francisco.

² Read before the Pacific Association of Railway Surgeons, Reno, Nevada, August 23-24, 1929.

fluenza encephalitis with extensive herpes, all regarded as chronic diseases of the vegetative system.

The significance of these findings may seem remote when we seek to apply them to human beings, but they bear on the defensive mechanics of the gastric and duodenal mucous membrane. Toxic influences on nerves are peculiarly selective and further investigation may bring to light some influence that we do not now see clearly. Furthermore, the danger of ulcer must be borne in mind in considering any interference with the vagi in the surgical relief of bronchial asthma, where recently it has been proposed and successfully carried out that section of the vagus below the recurrent laryngeal be done in protracted cases.

The etiology of peptic ulcer based on pathologic anatomy received earliest contribution from Markel in 1860, who reported finding vascular lesions in gastric ulcer—thrombosis of the pancreaticoduodenal artery.

Hauser, in a monograph published in 1883, further emphasized this and stated that hemorrhagic infarct precedes ulcer formation and always where there is local disease of the blood vessels. There is no development of new vessels in these areas and therefore the chronicity of ulcers in humans in distinction to experimental ulcers in animals.

Omata³ confirmed the chronicity of experimental ulcers by ligating various blood vessels of the stomach.

Ophüls, commenting on Hauser's claim in 1913, calls attention to the fact that hemorrhage in ulcer is not from the erosion of healthy vessels, or venous hemorrhage would be commoner than arterial, whereas it is quite uniformly the case that it comes from thrombosed or sclerotic arteries. That the thrombosis is not secondary to the ulcer is shown by the fact that it extends beyond the confines of the ulcer. In Ophüls' twenty-three autopsy records of gastric ulcer, eighteen were arteriosclerotic in aged persons, four were in young patients with thrombo-arteritis and one was in a young patient with an acute embolus.

These findings have the interesting value of explaining why chronic gastric ulcer is so difficult to treat successfully by medical means.

Rosenau's success in producing peptic ulcer of embolic origin with streptococcus cultures from alveolar abscesses injected into animals is a further step in developing the picture of what directly underlies the beginning of this trouble.

Brites⁴ discusses convincingly the rôle of embolic infarction in the pathogenesis of ulcer.

COMMENT ON THEORIES OF CAUSATION

These theories of the etiology of peptic ulcer are open to criticism and we can safely present only certain generalities bearing on them.

1. Peptic ulcer is a condition of middle-life rather than age, especially in women. In our last one hundred patients, 32 per cent were between the age period 30 to 39, and 34 per cent between the age period of 40 to 49.

2. It is apparently commoner in men than in women, although German statistics show about even distribution.

3. It is almost universally associated with bad dietary habits, sinus and oral sepsis, and diseased tonsils.

4. Some of the conditions which complicate it, appendicitis and cholecystitis, are suggestively connected with oral sepsis, although not either of them necessarily is causatively related to the ulcer.

5. The markedly greater proportion of ulcer cases among male employees than among female employees is strikingly shown in the Southern Pacific Company and the percentage is highest among those whose occupation and hours contribute to irregular and bad eating habits and inability to give adequate attention to daily mouth hygiene or to proper dentistry.

In view of the absence of definitely established etiology and only presumptive evidence of the relation of focal sepsis, it seems important to inquire whether the high rate of medical cures in one hospital may not be due to two important factors—teaching patients what, when, and how to eat, and removing all possible infections in the upper respiratory and digestive tracts.

COMMENTS ON MEDICAL TREATMENT

The somewhat facetious statement of W. J. Mayo, quoted by Douglas,² that the time to operate on a gastric or duodenal ulcer is after it has been cured nine times by medical treatment means simply that such a patient never was completely studied, the complicating conditions were not understood or dealt with, and the bad dietary habits were not changed. Medical treatment should mean the cleaning up of all infections in the upper tracts, a study of the chemical and motor efficiency of the stomach and the satisfying of the examiner that neither gall-bladder disease, pancreatic disease, adhesions from unknown causes, appendix pathology, nor even hemorrhoids complicate the patient's condition. Finally, the patient's occupation, habits of living, marital state, and teachability, all play a rôle in making a permanence of cure in the medical treatment of ulcer. A drunkard is not cured by stopping his drinking, and if you cannot deal successfully with all the factors that influence his taking of alcohol, including a continuous abstinence from temptation, as well as building up a new scheme of living, it is hardly fair to speak of the drunkard as cured. That we rarely have to resort to surgery in the treatment of duodenal ulcer, and then only because of complications, acute or chronic, for which medical treatment has no remedy, is due, in the writer's estimation, to the fact that so-called medical treatment has been too largely the treatment of symptoms and not underlying conditions. In this connection these few laws are laid down in our hospital service, and as yet there has been no single reason to change them:

1. Smoking is interdicted because of the overwhelming evidence in testimony of our patients that it aggravates and even produces pain.

2. Alkaline therapy is absolutely never used. Repeatedly patients come to us in whom ulcer has been diagnosed from typical symptoms and we obtain a history of constant use of soda bicarbonate or calcined magnesia, or both after meals, because they have learned to know that they might thereby avoid pain. The habit is pernicious, for pain is an excellent warning that an ulcer is active and that a dietary regimen is in order. Morphine in appendicitis is the only more acutely dangerous therapy that occurs to me, and woe be to the doctor who obscures his case by unwise use of that drug. The well-treated ulcer patient is a well-trained dietitian, and if he is wise he will live within the confines of what he can eat without pain. The entire absence of pain in a small percentage is well known, and the shock of perforation has been the initial symptom of ulcer in some cases.

3. A single test-meal is removed in all patients that have not the history of recent bleeding. This meal is preceded nine hours by three or four large prunes. The almost universal hyperacidity in uncomplicated cases can be assumed and is not a matter of much moment, but when absent, particularly in gall-bladder complications, it may be very significant. The prune residue, if found after test-meal, is an important indication of retention. The reason for these procedures will be evidence from the discussion of the diagnosis of peptic ulcer.

4. Rectal feeding we have never yet found necessary. Intravenous glucose is used rarely. Transfusion may be invaluable.

5. Rest in bed, especially if any bleeding is going on, is imperative.

SUBJECTIVE SYMPTOMS

The subjective symptoms of peptic ulcer are fairly clean-cut and in very few conditions are they of more importance in making a diagnosis. Most patients, at least 60 per cent, give a history that is quite characteristic. When one hears that for several years there have been periodic attacks, lasting four to six weeks, of pain in a small area, generally near the center of the epigastrium, coming on two to four hours after meals, or immediately after meals; that some foods cause it more commonly than others; that soda or eating relieves it when it comes late after meals; that soda relieves it and food makes it worse when the pain follows soon after taking it, one can suspect at once duodenal or gastric ulcer. The history of sudden weakness with or without nausea, of tarry stools or the vomiting of blood, and finally the occasional relief from change of position is of decided value in the diagnosis of gastric ulcer. Such a history opens the field for the development of corroborating evidence and this should be carried out as far and as often as possible while the patient is in bed. The physical examination may reveal nothing but a little local tenderness in the epigastrium and the usual bad condition of the mouth.

Pain that is characteristically night pain, coated tongue, bad breath, constipation, diffuse abdomi-

nal pain, all call for consideration of complicating conditions. The relative frequency of the chronic appendix with pylorospasm has to be given careful study. The retrocecal appendix when pressed upon may give a referred pain in the epigastrium without tenderness where the pain is felt. The appendix may be attached to the gall bladder or the pylorus as it has been twice in our series. The history of gas in stomach and cecum and as far as the hepatic flexure of the colon should make us suspicious of the gall bladder or of adhesions in the right upper quadrant, interfering with pyloric efficiency. The investigation at this point is contributed to greatly by two things. Simple uncomplicated gastric or duodenal ulcer in a patient resting in bed on a very light, bland diet, given in small quantities at frequent intervals, will cease to cause any pain in a day or two. The continuance of pain should always invite the consideration of complications and the chief of these are chronic appendicitis and cholecystitis with or without adhesions, ulcer at or very near the pylorus, six-hour retention, mucous colitis, or even bad hemorrhoids. Tuberculous peritonitis and tuberculous glands at or near the appendix have twice been found in our series.

VALUE OF AN X-RAY STUDY

The second thing that is important at this point is whether an x-ray study is immediately in order. From it we may expect the following facts to be brought out:

1. Is there a defect in the contour of stomach or duodenum characteristic of ulcer?

2. Does the duodenum fill normally? If irregular, and especially if immovable, pictures are necessary in order to get the details of the defect and to determine its constancy and relation to adjacent parts.

3. Does any irregularity in waves suggest a local defect?

4. Does the stomach empty within six hours?

5. Is the gall bladder visualized in plates made before barium is introduced?

6. Does the pressure of an enlarged gall bladder give a crescentic indentation to the duodenum?

7. Do lateral views of the bulb show the same arborization defect in all the plates?

8. The size of the liver is frequently confirmed in x-ray examinations.

9. The filling and emptying of an appendix and the movability of the cecum may give valuable data. We are inclined to the belief that the visualized appendix forty-eight hours after the barium meal betokens an unhealthy appendix because of its spasticity and is associated generally with a spastic colon, and any visualized gall bladder is open to suspicion.

At this point a word about the modern methods of outlining the gall bladder with tetraiodophthalein and other substances, may be in order. It is my personal experience that these methods have contributed very little to our clinical knowledge. Tetrabromphenolphthalein is a "dose" any way one looks at it or takes it. It is not free from

danger when given intravenously, and is nauseating by stomach. The repeated x-raying is bad, expensive, and in many cases the results are most uncertain. When subjective and objective symptoms and a good history do not direct the proper treatment, the x-ray of the gall bladder after dye rarely does. It is pain, fever, or local symptoms that are our best guides. In a recent case where clinically and twice by x-ray cholecystitis was diagnosed, a third investigator using the dye considered the gall bladder normal. Our clinical sense must not be warped. We have tried the French method of giving 300 grains of bromid, which produces the effect of making the gall bladder more easily outlined. I have found it valueless thus far.

The complaint is made by some surgeons that clinical and x-ray diagnosis of ulcer has resulted at times in failure to find ulcer at operation. There could not have been in such cases any justification for surgery. If x-ray had revealed typical deformity with six-hour retention, a characteristic history of pain after food with occult blood in a milk residue stool, it is foolish to say nothing is wrong. Certainly the case was not properly studied, or the operation properly conducted.

COMMENTS ON SPECIAL SYMPTOMS

1. *Hemorrhage.*—Great care must be exercised in excluding bleeding gums, varices, and hemorrhoids as a possible source of occult blood. It is about five to ten times more likely that blood vomited or found in stool comes from ulcer than from cirrhosis of the liver, and in this latter condition pain is not graphic. A localized hepatitis from diseased gall bladder will give a tenderness that is suggestive and which approaches the finger when the abdomen is pressed upon below the gall bladder. Moynihan and Robeson both call attention to pain produced when the point halfway from gall bladder to navel is pressed upon. Pain, if it does occur, is not characteristically influenced by food.

Hemorrhage from the stomach in chronic appendix condition is not so rare. Moynihan, in his first reference to it, reported it twelve times in cases operated for ulcer of the stomach where only a diseased appendix was found. With a history of clinical findings not characteristic of ulcer and yet with repeated occult blood, it is safe to suspect cirrhosis first and then the appendix. Chronic cholecystitis has also been the cause of gastric hemorrhage, hence the importance of convincing x-ray study, history, and physical examination in any doubtful case.

2. *Pain May Be Deceiving.*—Mace reports diaphragmatic pleurisy on right side simulating ulcer pain, and we confirm this finding. Delayed emptying from adhesions or gall-bladder disease may be accompanied by pain near the pylorus from ineffectual gastric peristalsis. Mucous colitis produces at times a most distressing and baffling picture of gastric disorder, nausea, pain, and tenderness. It has become part of our routine to

TABLE 1.— <i>Lenhart's Diet</i>									
Day	Calories	Eggs	Milk	Milk Sugar	Scraped Beef	Boiled Rice	Zwieback	Butter	Chicken
1	280	Raw 2	100 cc. (3½ oz.)						
2	470	Raw 3	200 cc. (6½ oz.)						
3	637	Raw 4	300 cc. (10 oz.)	20 gm. (5 dr.)					
4	777	Raw 5	400 cc. (13½ oz.)	20 gm. (5 dr.)					
5	966	Raw 6	500 cc. (16½ oz.)	30 gm. (1 oz.)					
6	1135	Raw 7	600 cc. (20 oz.)	30 gm. (1 oz.)	36 gm. (9 dr.)				
7	1580	Raw 4	700 cc. (23½ oz.)	40 gm. (1½ oz.)	70 gm. (2½ oz.)	100 gm. (3½ oz.)			
8	1720	Soft 4	800 cc. (26½ oz.)	40 gm. (1½ oz.)	70 gm. (2½ oz.)	100 gm. (3½ oz.)	20 gm. (½ oz.)		
9	2138	Raw 4	900 cc. (30 oz.)	40 gm. (1½ oz.)	70 gm. (2½ oz.)	200 gm. (6½ oz.)	40 gm. (1½ oz.) or toast 20 gm.	20 gm. (½ oz.)	50 gm. (1½ oz.)
10	2478	Soft 4	1000 cc. (33½ oz.)	40 gm. (1½ oz.)	70 gm. (2½ oz.)	200 gm. (6½ oz.)	40 gm. (1½ oz.) or toast 20 gm.	40 gm. (1½ oz.)	50 gm. (1½ oz.)
11	2941	Raw 4	1000 cc. (33½ oz.)	40 gm. (1½ oz.)	70 gm. (2½ oz.)	300 gm. (10 oz.)	60 gm. (2 oz.)	40 gm. (1½ oz.)	50 gm. (1½ oz.)
12	2941	Soft 4	1000 cc. (33½ oz.)	40 gm. (1½ oz.)	70 gm. (2½ oz.)	300 gm. (10 oz.)	60 gm. (2 oz.)	40 gm. (1½ oz.)	50 gm. (1½ oz.)
13	3007	Raw 4	1000 cc. (33½ oz.)	40 gm. (1½ oz.)	70 gm. (2½ oz.)	300 gm. (10 oz.)	80 gm. (2½ oz.)	40 gm. (1½ oz.)	50 gm. (1½ oz.)
14	3007	Soft 4	Same as thirteenth day.						

have the history of passing mucus looked into and stool of all ulcer subjects examined for mucus.

Benjamin and Schwartz⁵ report angina pectoris with duodenal ulcer, and Doctor Coffey and I have had more than one such case. It must be remembered that the sphincter innervation through the pneumogastric in the body is the same, and pylorospasm from ulcer as well as from gall-bladder disease may cause pain radiation exactly simulating angina pectoris.

The need of a routine Wassermann test was called to our attention many years ago, for we had a surprising number of cases of ulcer in syphilitics and found occasionally that the ulcer did not heal satisfactorily until the syphilis was thoroughly treated. We were forced to make exception to the rule that the company does not treat venereal disease, because without antisiphilitic therapy these cases were not relieved. Occasionally hemorrhage from the stomach has been a symptom in these cases where the pain symptoms were not present or not characteristically so, and the x-ray revealed no ulcer. These may be cases of hemorrhage in early cirrhosis.

3. *Fever* is a confusing symptom, rare in uncomplicated ulcer but occasionally reported. Even chills with high fever has been reported, whether from absorption of protein or not is guesswork. In view of the frequency of cholecystitis with ulcer, the intermittent fever of Charcot should be kept in mind. In our experience it is not always accompanied by jaundice.

TREATMENT

Whatever the suspected etiology, rest in bed on Lenhart's or our Southern Pacific diet in all cases during investigation. With Jarotsky's so-called milkless diet of albumen and fat we have had no experience.

TABLE 2.—*Southern Pacific General Hospital Diet for Patients with Peptic Ulcer—"Brown" Diet*

First day: Four ounces of milk every two hours—7 a. m. to 7 p. m. (seven feedings). If patient has night pain on this diet give a feeding next night at 11 p. m. if awake, or leave four ounces of milk at bedside to be taken if pain recurs.

Second day: Add one soft boiled or poached egg twice daily at second feeding and sixth feeding.

Third day: Add milk at noon, fourth feeding. Add cream of wheat morning and night, first and sixth feedings. Increase milk to five ounces per feeding.

Fourth day: May have three eggs during the day, milk toast once and cereal twice. Second, fourth and sixth or seventh feedings. 9 a. m., 1, 5 or 7 p. m.

Fifth day: Continue seven or eight feedings of the above foods, from 7 a. m. to 7 or 9 p. m. through the fourteenth day, increasing gradually the number of eggs to six and the amount of milk toast and cereal. Scraped meat, broiled slightly, with no pepper may be substituted in equal volume for eggs, after stools have become negative for occult blood any time after the seventh day.

On and after the fifteenth day the patient is given puree of vegetables, or cooked fruit, the "increased Lenhart."

On the seventh day and thereafter, increase milk to seven ounces if patient has no symptoms. In case the patient has pain other than referred to on the first night, hemorrhage, retention at six hours or other complications, the staff man will prescribe the proper diet and ask for surgical consultation.

Milk should be taken ice cold and with a tablespoon if patient has been bleeding or if there be much pain.

The full amount of milk need not be taken if patient does not wish it, nor should the rest of the diet be given in these amounts if patient is satisfied with less.

Do not smoke. Move bowels every other day with enema and send small amount to laboratory until twice negative for occult blood. After bleeding ceases, milk of magnesia may be used instead of enema.

Time will be saved if patients stay strictly in bed. This is imperative if there should be any occult blood.

Test-meal in cases where no hemorrhage has occurred within a week. Precede this the night before with prunes so as to get a line on retention. The chief value of the test-meal is to help weigh any complications. An x-ray study is in order if available, especially in suspected gastric ulcers which are potentially surgical. If a good x-ray examination cannot be secured, the prune residue is a valuable hint and the clinical evidences of complications can be found if carefully enough looked for.

Bleeding is not regarded as counterindication to Lenhart's diet. If extreme, it calls for immediate medical treatment. Ewald has advised lavage with ice water. Personally, we use calcium chlorid intravenously, five cubic centimeters of a 10 per cent solution obtained in ampoules and followed by one of the coagulating adjuvants like whole blood, thromboplastin, etc. I have once successfully resorted to strong adrenalin solution poured through a stomach tube inserted to wash out masses of decomposing clots. The adrenalin was washed out with ice water after a few minutes.

Transfusion not only helps to check bleeding but prepares the patient for the possible need of surgery for tying off the bleeding vessels. We have dealt with a number of patients brought in with 20 per cent hemoglobin and 1,250,000 red cells. Since the introduction of transfusion none of these have died.

Retention evidenced by the distress, lack of appetite, loss of weight, nausea, vomiting, etc., and confirmed by x-ray, does not necessarily call for surgery. Cleaning out such a stomach and the Lenhart diet will usually reduce the retention steadily. Our plan is to recheck in twelve days with gradually increased diet. As much as a 50 per cent retention from ulcer has disappeared in that time. A few cases, not good operative risks, have had the rest and diet continued a month or even more, and we are gratified to find that it is worth while often enough to give it serious consideration.

Burning and acidity in uncomplicated cases correct themselves almost at once on the Southern Pacific or Lenhart diet. If they do not, look for complications. In a recent case of a young man, we could detect no complication by any investigation and even resorted to belladonna and alkali with indifferent result, when he had a typical gall bladder night pain which cleared the situation. A second case was relieved at once by dealing with the wife who was a scold and whose visits were followed by marked hyperacidity. So great is my prejudice against the Sippy diet, its use of alkali, and of stomach or duodenal tube to remove secretion, that I feel it the worst possible regimen on which to put an ulcer case. Who ever heard of a surgeon sticking a stomach tube down a patient as a routine after a gastro-enterostomy or poking in soda and magnesia? It is a good motto to let well enough alone. Most ulcer patients have learned to use soda to relieve their pains, and it is a dangerous practice. How much more rational and simple to deal with the underlying condition.

Rechecking the gastric secretion after *all* symptoms have disappeared has borne out the wisdom of this procedure. The hyperacidity in uncomplicated cases disappears with the pain and also the occult blood as the ulcer heals.

Gastric ulcers are the common meeting ground of physician and surgeon. I have said above that they are potentially surgical, but since the introduction of protein therapy (and we have used sterile fat-free milk) we have had such good results in gastric ulcer patients that I am inclined to reserve the favorable cases for such treatment. If the ulcer crater as shown on x-ray plates is not too large and the stomach empties normally and occult blood disappears in two weeks and the crater itself gets steadily smaller, I would defer surgery. Marten⁶ has reported on milk injections as they have influenced symptoms and progress.

It is obvious that as the etiology of peptic ulcer in human beings is still a good deal uncertain in spite of certain definite evidence in part of the cases studied we cannot base therapy on etiology. It is reasonable in any event to remove all foci of infection and to prescribe a less stimulating and irritating diet. For the healing process we are dependent upon the well-established fact that mucous membranes show a remarkable tendency to heal if given any sort of chance.

An explanation of the tendency to recurrences may be found in what is established in etiology. If vagus neuritis from infection be a cause, then unless the vagus returns to normal we may expect recurrences. We cannot hope to cure the arteriosclerotic ulcers of the aged by medical means, nor can we expect to see regeneration of an area where necrosis results from thrombo-arteritis. If the involved area be small, it is conceivable that healing may take place. Hurst⁷ suspects cancerous change if the blood continues and the crater, after a month, is unchanged. R. Schmidt long ago called attention to Boas Oppler bacilli in the stool of these cases even when the gastric content still contains free HCl, and we have confirmed this finding.

Finally, clean up the infections as fast as possible, and begin teaching dietetics early. The men who live in restaurants, eat irregularly and what they like, especially when tired, neglect their infections, who overeat and react badly to worry and strain are poor medical patients, but they make up the surgical failures quite as often.

909 Hyde Street.

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THE LURE OF MEDICAL HISTORY

THE WILLIAM BEBB COLLECTION OF PRINTS OF PARIS HOSPITALS*

By EVA WEST
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IN the field of medical history there are endless opportunities for the satisfaction of almost any collector's fancy. Pictures, expressing so much more readily than words could ever do, are being more and more appreciated as desirable items in medico-historical libraries. Many notable collections of prints relating to medical history are to be found in California, among which may be mentioned those of Dr. LeRoy Crummer in Los Angeles, Dr. Herbert Evans in Berkeley, and Dr. William Kerr in San Mateo. To these should be added the interesting collection of prints relating chiefly to French hospitals deposited by Dr. William Bebb of Elkhorn, Wisconsin, in the University of California Medical School Library, San Francisco.

The Bebb collection includes about twenty prints of English hospitals and one or two of old American hospitals, but it is especially rich in material relating to the great hospitals of Paris. Practically every important hospital in Paris is represented not only by century-old prints of floor plans and elevations, but also by engravings, etchings, and lithographs of interior and exterior scenes associated with the buildings and grounds about them.

About 1810, H. Bessat apparently made a series of drawings combining general ground plans with front elevations of the leading hospitals of Paris. Engraved by Thierry, this series is especially well represented in the Bebb collection. A later group of scenes connected with the various hospitals was made by T. Guerin and engraved by C. Detrich for the purpose of illustrating a series of magazine articles on the Paris hospitals. There are a few early engravings of the seventeenth and eighteenth centuries included in the collection.

One of the most remarkable items in the Bebb collection is the original floor plan to scale of one of the provincial hospitals designed in 1809 by Comber for Bordeaux. The characteristic arrangement of the Parisian hospitals of this period, in the form of low buildings about large open courts, was apparently preserved, as this sketch shows, in the provinces. The space assigned in the building to the different types of service is clearly indicated, and careful arrangements seem to have been made for proper hygienic management.

THE LEADING CHARITY HOSPITALS OF PARIS AS ILLUSTRATED IN THE BEBB COLLECTION

L'Hôtel Dieu.—L'Hôtel Dieu of Paris is one of the oldest hospitals in the world, being founded

* This note was prepared from descriptive cards made by Miss Eva West for use in exhibiting the collection, and was edited for publication by Chauncey Leake and Sanford Larkey.

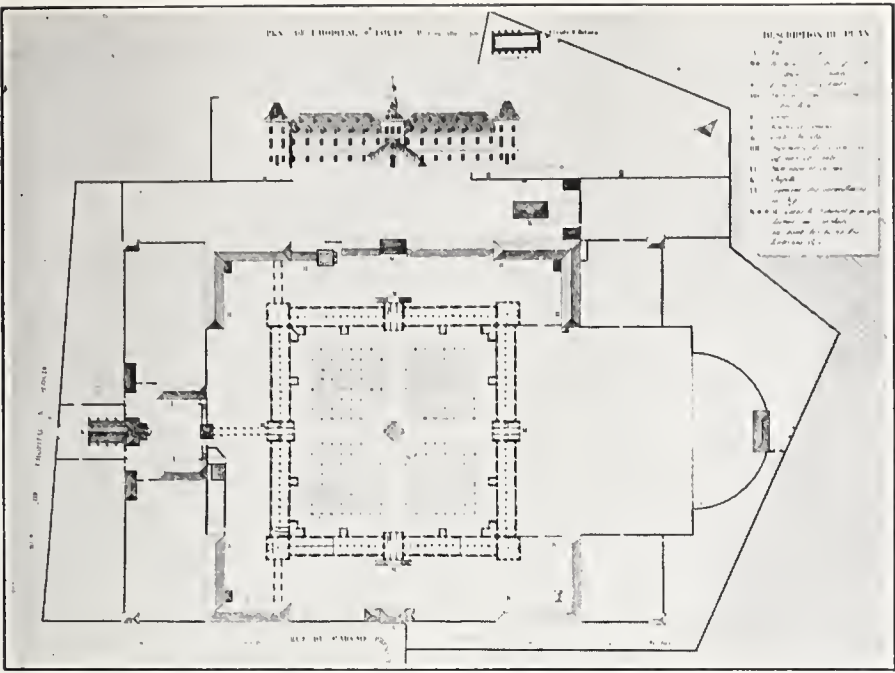


Fig. 4.—Hôpital Saint Louis. Bessat's ground plan and front elevation (1806) of the great Parisian dermatological clinic and hospital

and in-patients, twelve hundred to fifteen hundred being given daily.

Hôpital de la Charité.—In 1602, Marie de Médicis introduced from Italy four members of the order of Saint Jean de Dieu (called also Frères de la Charité) to whom she confided the management of a small hospital in the Rue de Petite Seyne. The present buildings were erected in 1607, part of them being occupied by the frères of Saint Jean, the rest devoted to the accommodation of the sick. In 1793 the name of this hospital was changed from L'Hôpital de la Charité to L'Unité, and did not recover its former name until the consulate. Previous to the Revolution, none but male patients were admitted. There being only two hundred beds, it required much influence to gain access. After 1790 an appropriation of twelve thousand francs was made by the National Convention for the support of one hundred additional beds for female patients. It now contains six hundred and fifty beds. The hospital is composed of a confused mass of irregular buildings between which are several courts and gardens where the convalescents are allowed to exercise. At one time the staff of physicians included Velpeau, Andral, Bouillaud (disciple of Broussais), Cruveilhier, Rayer, and Fouquier.

Hôspice des Femmes Incurables.—The Cardinal de la Rochefoucault founded this establishment in 1634, and planned it for indigent and incurable old women and girls. Sisters of Charity attend the inmates with most devoted care. The wards are large, and in the form of crosses, ar-

ranged on either side of the chapel, with which they communicate. Those on the ground floor are partitioned off into little compartments for the old inmates; the newly arrived ones are placed in the common and open wards on the second floor.

Hôpital de la Maternité.—This hospital occupies the buildings that formerly constituted the ancient Abbey of Port Royal, founded in 1625. It served as a prison from 1790 to 1795, when it became a hospital. It was first called La Bourbe, then La Maternité when the Council General purchased the buildings and changed them into a hospital for the care of pregnant women. Before that time such cases had been confined in the Hôtel Dieu, where most lamentable conditions

prevailed in the crowded wards. The École d'Accouchement is a school attached to L'Hôpital de la Maternité for the instruction of midwives, where a limited number of students come yearly for the two-year theoretical and practical course provided.

L'Hôpital de la Pitié.—This hospital was constructed by the order of Louis XIII, but in 1612 the buildings were appropriated by the magistrates for a prison for the poor. In 1657, when Salpêtrière was built, the houses of La Pitié received homeless and sick children. During the Revolution the hospital was called L'Hôpital des Enfants du Faubourg St. Victor, and then the Hôspice de la Patrie, and finally La Pitié when it became an annex of the Hôtel Dieu.

Hôpital des Enfants Malades.—Founded in 1735 by Languet de Guercy, Curate of Saint Sul-

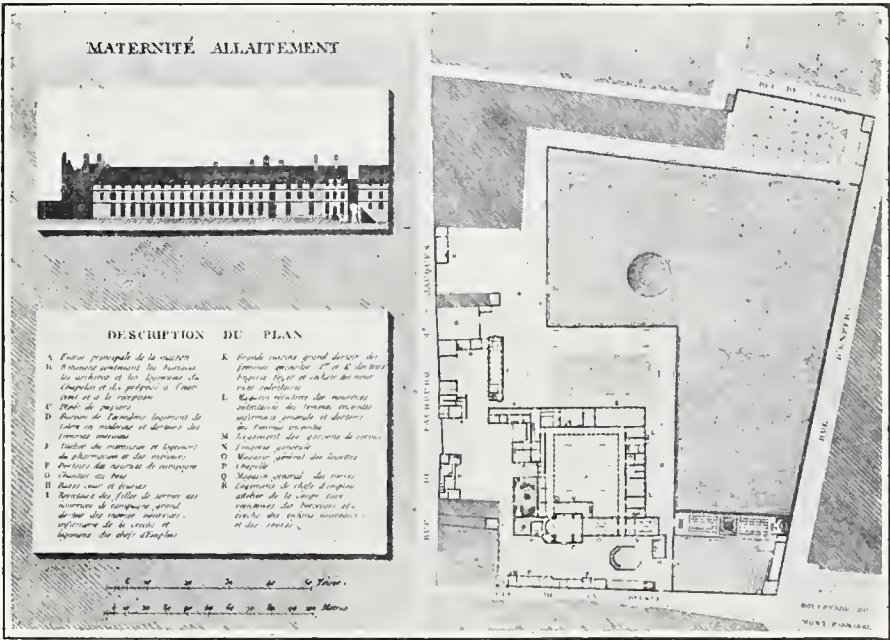


Fig. 5.—Hôpital de la Maternité. Bessat's ground plan and front elevation, drawn in 1811

pice, and with the patronage of Marie Leczinska, wife of Louis XV, this hospital was purchased in 1802 by the "Conseil des Hôpitaux" and converted into a hospital for sick children. Because of the devoted care given the little patients here, this institution was ever popular with parents and so always crowded. It had a notorious death rate because so many seriously ill patients were received, and from the lowest classes of society.

Saint Antoine.—Saint Antoine Hospital is situated in a Parisian suburb of that name. It is surrounded by large grounds and gardens. It was opened January 17, 1795 by a decree of the Convention, upon the site of an ancient convent founded in 1198 by Foulques de Neuilly and reconstructed in 1770. It contains nine hundred beds.

During the spring of 1929 the William Bebb collection was displayed in part at the University of California Medical School. During the spring and summer of 1930 it will be exhibited in part at the Lane Medical Library, Stanford University Medical School, San Francisco, and later in the library of the San Diego County Medical Society.

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CLINICAL NOTES AND CASE REPORTS

COMPRESSION FRACTURE OF THE FIFTH LUMBAR VERTEBRA*

REPORT OF CASE

By S. NICHOLAS JACOBS, M. D.
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COMPRESSION fracture of the body of the fifth lumbar vertebra, uncomplicated by dislocation or compression fractures of other vertebrae, is rarely found. Review of the literature and experience shows that whereas fractures of the transverse and spinous processes and compression fractures of the bodies of other vertebrae are fairly common in injuries to the spine, the fifth lumbar vertebra singly is rarely affected. Osgood¹ reports that 40 per cent of all fractures of the spine are compression fractures of the bodies, usually only one body being involved. Of these, 70 to 80 per cent occur in the twelfth dorsal or first lumbar. In Wallace's series² of eighty-one cases, a single vertebra was involved in sixty cases. The only individual vertebrae not involved were the first and second cervical, sixth cervical, and first dorsal. Wallace reports the fifth lumbar vertebra crushed in ten cases (12 per cent), but these evidently occurred simultaneously with fractures of other vertebrae, as they are reported in a series of 125 fractures occurring in the eighty-

one cases. Hoy³ reports his own series of twenty-two lumbar fractures in which there is one case of crushing fracture of the fifth lumbar and one case in which the third, fourth, as well as the fifth lumbar vertebrae are involved. No other series of cases is reported in recent literature in which mention is made of fracture of the fifth lumbar.

The case reported below is a compression fracture of the body of the fifth lumbar vertebra which was treated by a bone fusion operation, resulting in complete restoration of the body of the vertebra.

REPORT OF CASE

W. C. L., male, age forty-nine years, on August 6, 1928, fell fourteen feet from a ladder, striking his back. He was rendered unconscious for about ten minutes. Upon regaining consciousness his first sensations were severe pains in the lower part of the back and down both legs. He was not dizzy or nauseated; there were no involuntary bladder or bowel movements; there was no motor paralysis. After lying in bed for about one week, he began to move about on crutches, and the pain was aggravated by any movement of the body. He was seen by us on September 15.

Physical examination showed extreme tenderness along the lumbar spine and limitation of motion of the spine in all directions. There was no marked scoliosis or lordosis, but there was some flattening of the lumbar curve.

Laboratory findings were all normal; Wassermann test was negative.

X-ray examination on admission showed a compression fracture of the fifth lumbar vertebra, fractures of the first, second, third, and fourth lumbar left transverse processes and fracture of the third lumbar spinous process. The compressed body was somewhat moth-eaten in appearance with its outline obliterated; Dr. F. Rice, roentgenologist to the Sutter Hospital, suggested the possibility of the presence of malignancy with a pathological fracture. The pictures were also submitted to Doctors H. Ruggles and W. E. Chamberlin for opinion. Doctor Ruggles reported: "... compression fracture of the body of the fifth lumbar vertebra. There is no forward displacement of the fourth upon the fifth, nor of the fifth upon the sacrum." Doctor Chamberlin reported: "... body of the fifth lumbar vertebra is very indistinct in spite of neighboring structures being very well demonstrated. A most important finding is the presence of an increase in the anteroposterior dimension of the body of the fifth lumbar. I am unable to conclude that there is a tumor or other disease in this vertebra. I interpret the findings as those of a crushing fracture of the body of the fifth lumbar."

In view of these reports, surgical intervention was deemed advisable. A bone fusion operation (modified Hibb's-Albee) was carried out. In order to further rule out any possibility of the presence of pathology previous to the accident, curettings were taken from the crushed vertebra to be examined and injected into a guinea pig. Microscopic examination showed no evidence of malignancy or tuberculosis, while subsequent guinea pig examination also was negative for tuberculosis. A double bone graft from the left tibia was performed. The grafts were laid from the third lumbar vertebra to the sacrum. A body cast was then applied.

Check-up x-ray examination two months later showed an increase in the bony density of the fifth lumbar vertebra with no rarefaction of bone about the graft. Physical therapy was instituted and the patient was fitted with a Taylor spring back brace. His recovery was very gradual but progressive, and he was able to move about with a cane at the end of ten weeks. X-ray examination in January 1929 showed continued increase in the amount of bone deposited within the body of the fifth lumbar vertebra.

* From the Sutter Hospital, San Francisco.

The intervertebral spaces were normal and the alignment perfect. The bone grafts showed evidence of partial fusion with the lumbar vertebrae and there was no evidence of rarefaction about them.

The patient's physical condition gradually improved so that by August 1929 he was able to resume his occupation as electrician. Physical examination in December showed almost complete return of function of the back. There was no tenderness along the lumbar spine and there was little limitation of motion. On bending forward, the finger tips came within eighteen inches of the floor. Final check-up x-ray pictures taken in April 1930 showed a recalcification of the body of the fifth lumbar vertebra. The fixation was fairly complete as a result of the bone grafts. The anatomical position was good and complete recovery had resulted.

1065 Sutter Street.

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DIVERTICULA OF THE STOMACH*

REPORT OF CASES

By MILTON J. GEYMAN, M. D.
Santa Barbara

EVEN since the advent of the roentgen ray, comparatively few cases of gastric diverticula have been reported in the literature. This is partially due to their rarity as true diverticula occur much less frequently in the stomach than in other portions of the gastro-intestinal tract.

Diverticulous pouches in the stomach are of two types—congenital and acquired. The congenital type has two favorite sites of occurrence, in the posterior wall of the cardia and in the pyloric end. The cardiac type is much more commonly seen and most cases reported are of this type. Their appearance is strikingly similar as to site, and the size varies from that of a pea to

that of an egg. Pathological examination of these diverticula which have been removed at operation or postmortem examination show, as a rule, no evidence of inflammatory change. All normal layers of the stomach are found present but the muscular layers may be extremely thin. In fact the reason that the cardiac end type is most common is that the inherent weakness of the stomach is at this site. This is explained by two anatomical observations: the entrance of larger blood vessels, and the thinness of the oblique and circular fibers at this point. Kalbfleisch, in an excellent recent article on this subject, compares this site to the similarly weak point in the lower pharynx where the so-called Zenker's diverticulum is seen.

The other congenital diverticula occur in the pyloric end of the stomach. In the bottom of these pouches pancreatic tissue is commonly found and this is the explanation given for their occurrence.

The acquired type of diverticulum often consists of only one or two layers of stomach wall. In general, this type has two etiologies: (1) trauma; (2) the result of inflammatory changes in the stomach or adjoining structures. Traumatic diverticula are usually of the pulsion type and may be caused by hair balls, foreign bodies and pyloric obstruction, with resultant formation at a weak site.

The traction type is caused by adhesions which develop after long-standing inflammation in the gall bladder, pancreas, colon, or lymph glands.

As to the clinical significance of diverticula of the stomach, it is doubtful if they are of much import. Symptoms are as a rule vague and of mild character. Vague discomfort in the epigastrium, substernal fullness, stinging sensations after eating certain foods, and sour eructations comprise the most commonly mentioned complaints. Complications of clinical significance are rare. Mayo reports the presence of carcinoma at the bottom of a diverticulum. Bell and Golden, in a recent report of four cases, refer to cases re-

*Read before the Radiology Section of the California Medical Association at the fifty-ninth annual session at Del Monte, April 28 to May 1, 1930.

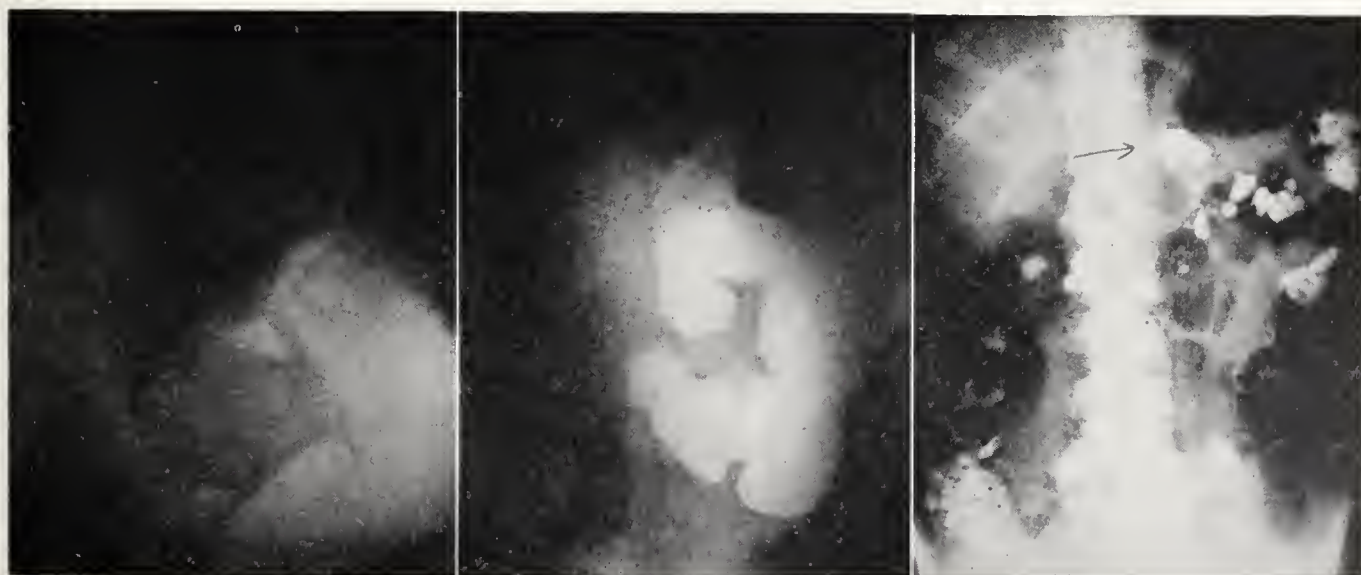


Fig. 1.—Shows the diverticulum as seen immediately after a barium meal.

Fig. 2.—Shows the diverticulum as visualized immediately after the barium meal in the right oblique position.

Fig. 3.—Shows the barium-filled pouch at forty-eight hours after the meal.

ported by European writers in which myomata were found in the walls of the diverticula. These patients suffered from severe hemorrhages as the tumor progressed. Bell and Golden quite reasonably believe that these should not be described as diverticula, because the apparent pouching in the gastric contour was caused by central degeneration in the individual tumor with invagination of mucosa into the hollowed sphere. The roentgen appearance of gastric diverticula is, of course, unmistakable.

REPORT OF CASES

The following two cases are reported as typical examples of cardiac end diverticula:

CASE 1.—Male patient of sixty-six years of age. For the past twenty years he has had a vague, dull ache in the upper abdomen. With the onset of this complaint he noted a burning in the epigastrium which was relieved by food. He complained of an almost constant sour stomach, and for years was on a serial small meal regimen. In recent years the distress has been more constant.

CASE 2.—Female patient, thirty-four years of age. Her chief complaint was a stinging sensation in the left side of the epigastrium at the costal border. This always occurred immediately after eating sugar, condiments, sticky, dry or rough foods. No relief was obtained with soda. Drinking water relieved the sting promptly.

Santa Barbara Cottage Hospital.

XY DYSTOCIA DUE TO FETAL ASCITES

REPORT OF CASE

By JOHN N. EWER, M. D.
Oakland

RARE among complications of labor are dystocias caused by fluid accumulations enlarging the fetal abdomen. According to Dorland¹ such accumulations fall into six classes, namely: (1) serum in the fetal peritoneal cavity ("true fetal ascites"); (2) fluid distention of the fetal urinary tract ("retention of fetal urine"); (3) fluid in the tissues of the fetal body ("general anasarca of the fetus," "general edema of the fetus," "fetal dropsy"); (4) congenital polycystic kidneys; (5) cystic degeneration of the fetal liver; (6) fluid distention of the fetal genital tract (vagina, uterus, and tubes).

In his article Dorland listed all such cases in the world literature up to 1919. Of the first class he was able to find only eighty cases, including his own. A search of the literature as listed in the Catalogue of the Surgeon-General's Library and The Quarterly Cumulative Index Medicus since that time reveals apparently only four additional cases of fetal ascites, those of Alam,² Rizzuto,³ and Palieri⁴ (two cases). The case reported below makes a total of eighty-five cases in all.

REPORT OF CASE

V. N., white, age twenty-eight, gravida V, entered Highland Hospital June 27, 1929, at term. Her previous pregnancies and labors were normal. The patient was not in labor, but was admitted because of edema of the legs and feet, overdistention of the abdomen, and because no fetal movements had been felt for two weeks. At physical examination no general abnormalities were found. The abdomen was very

large and hard, the fundus extended 43 centimeters above the symphysis, fetal parts were not felt, and fetal heart tones were not heard. There was no dilatation of the cervix. The Wassermann reaction and urinalysis were negative. The pelvic measurements were: I. S., 25 centimeters; I. C., 28 centimeters; Tr., 32 centimeters; E. C., 22 centimeters. The patient had a large rectocele and a small cystocele.

The membranes were artificially ruptured at 7:30 p. m. with the purpose of inducing labor. About four to five liters of straw-colored amniotic fluid escaped. Labor pains began at 11 p. m. The position of the fetus, as determined by rectal examination, was L. O. A. Labor progressed normally, and the head was delivered spontaneously by L. O. A. mechanism at 1:30 p. m. June 28, 1929. All efforts of the intern to extract the body failed, and the writer was called. The shoulders, as determined by vaginal examination, were free in the pelvis, but the fetal abdomen was found greatly distended above the brim, and tense as though full of fluid. With great difficulty the fetal abdomen of the dead fetus was punctured twice with a long pair of dressing forceps, allowing considerable fluid to escape, but not enough could be evacuated to collapse the abdomen sufficiently to allow it to pass the inlet. In order to better reach and perforate the abdomen, the fetus was decapitated and podalic version done under ether anesthesia. Enough small perforations were then made to drain sufficient fluid to allow the child to be delivered by breech extraction. There was no perineal tear. The placenta and membranes were delivered intact. The puerperium was normal, with a maximum temperature of 99 degrees on the sixth day postpartum, and the patient was discharged July 7, 1929.

Autopsy.—Anatomical diagnosis: "Hydroperitoneum, hydropleura, hydropericardium." The fetus was well developed and formed, and was not edematous; it showed slight maceration. Gross and microscopic examination of the various organs showed no abnormalities. Unfortunately the placenta and cord were not dissected and thoroughly examined, but they appeared normal to the usual inspection at the time of delivery.

Dorland found in his review of the literature that in about one-half of the cases fetal peritonitis was the cause of the ascites. Other causes were absence of the ductus venosus, abdominal tumors or distended bladder exerting pressure on large vessels or upon the portal vein, fetal cardiac failure, and lesions of the liver and spleen. Syphilis was mentioned as a rare cause. None of these conditions were present in the case here reported, and the cause of the ascites remains unknown.

251 Moss Avenue.

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UNIVERSITY OF CALIFORNIA HOSPITAL— MEDICAL DIVISION*

REPORTS AND DISCUSSIONS ON PATIENTS HAVING TUBERCULOSIS INVOLVING THE EYES

CASE I.—T. B. Admission No. 76359; married; male; half American-Indian; age twenty-seven; entered University of California Hospital medical teaching service on August 1, 1930. Referred by Dr. J. W. Carlson of Oakland.

Chief Complaints.—Photophobia, inability to read, and aching pains in eyes of fifteen months' duration; residual paralysis of left face since four years ago;

* Cases presented at the Wednesday morning staff conferences.

boils since April 1930, four months ago; abdominal pain in March and April, 1929.

Present Illness.—Four years ago, for the first time, patient noted sudden appearance of numbness of left side of face and tongue while washing in cold water, inability to move the left side of the face, stiffness of the left face, inability to move the ears or wrinkle the forehead, inability to close the left eye completely, and difficulty in getting food from the mouth back into the pharynx. During the preceding month he had been riding sixteen miles to work daily in an open automobile in cold weather. All these symptoms have gradually improved since; but are still present to a minor extent. There were no known abscessed teeth, no discharging ears, and no mastoid tenderness, or paranasal symptoms at that time.

Fifteen months ago the patient first noted reddening, blurring of vision, photophobia, and diminished visual acuity in both eyes, but much more marked in the right. These symptoms became progressively worse from then until the present time, with the exception of a brief period four months ago when there was some improvement following the extraction of three teeth, two of which had apical abscesses, from the right upper jaw. At the present time he is able only to distinguish light and darkness with the right eye, and to read large newspaper headlines with the left. Photophobia and orbital pain are marked.

Seventeen months ago the patient first had severe, colicky pains all over the abdomen, anorexia, and generalized weakness, and lost eighteen pounds in weight during the ensuing few weeks. He had been working as a sand polisher on recently sprayed automobiles, which had an undercoat containing 15 per cent lead, for one year, when these symptoms appeared. There was no diarrhea or constipation, and no localized muscle weaknesses. He stopped work for a time, and these symptoms disappeared, only to reappear when he went back to work. After this happened on two or three occasions, he stopped work at this plant permanently four months ago, and has had no recurrence since. Has had some tingling in the fingers of the right hand during the past week. Basophilic stippling of red cells, and lead in a twenty-four-hour urine were discovered in the clinic just prior to the patient's entrance into the hospital.

For the past four months the patient has had a pustular eruption over the back, and several boils in different places; at present he has a boil on the nose.

Six weeks ago the patient noted a weakness of the right face, numbness of the right side of the tongue, and inability to close completely the right eye. These symptoms entirely cleared up after a short time.

Family History.—Unimportant.

Marital History.—One child living and well. Wife well.

Systems and Past History.—Negative except for occasional vertigo, pain in the tip of the left ear for the past year, lacrimation since onset of present illness, a few fillings in the teeth, adenopathy in epitrochlear region noted by patient for past six months, and frequent colds during the past three years, with slight dyspnea on effort. Malaria five years ago, treated with quinin; no recurrence.

Physical Examination.—General: Coöperative American-Indian of stated age, worried, in no acute distress, almost completely blind.

Skull and scalp: Negative.

Face: Inability to wrinkle forehead. Folds on left side of face are ironed out. Aperture of left eye is questionably narrower than the right. The lip spread is greater on the right. Sensation is normal.

Eyes: Right pupil is irregular, contracted, fixed. There is a beginning pannus formation. There is vitreous opacity and ciliary injection. Tension 35 (Schiotz). Tuberculoma on iris.

Left pupil dilated, reacting sluggishly to light. Vitreous opacity. Ciliary injection.

Fundi: Unable to examine.

Ears: Negative.

Nose: Furuncle on tip of nose. Septum deviated to right. Mucous membrane inflamed.

Mouth: Negative. No lead line.

Tongue: Negative.

Throat: Posterior pharynx reddened, inflamed. Tonsils small.

Neck: Many small, discrete, nontender nodes in both triangles of each side of neck.

Thyroid: Palpable. Unimportant.

Chest: Supraclavicular wasting on both sides; and infraclavicular wasting on left. Lag on right. Guarding of muscles of right top posteriorly.

Lungs: Vocal fremitus normal. Percussion note resonant throughout. Breath sounds and voice sounds harsh at both tops posteriorly, more so on right side; on one occasion some râles mesial to right scapula, persisting after cough. Another member of the staff found râles mesial to left scapula only; while two other members found nothing abnormal in the chest. The findings were certainly very few, and doubtful.

Heart: Normal. Blood pressure, 130/88.

Abdomen: Normal. Liver edge felt at costal margin.

Lymph nodes: Many small to moderately sized nodes palpable in cervical axillary, epitrochlear and inguinal regions—not tender. No adherence to overlying skin.

Skin and mucous membrane: Pale, poor color and tone. Racial pigment.

Reflexes: All slightly hyperactive. No pathological ones.

External genitalia and rectal: Normal.

Laboratory Data.—Urine: Twenty-four-hour sample in clinic on June 17, 1930, positive for lead, very faint trace of albumin, two red cells per high dry field, occasional pus cell, and few fine and coarsely granular casts.

Wassermann: Negative.

Blood: Hemoglobin, 90 per cent (Sahli, 14.0 grams per 100 cubic centimeters of blood); red cells, 4,450,000; white cells, 7500; polymorphonuclears, 70 per cent; eosinophils, 2 per cent; basophils, 1 per cent; lymphocytes, 16 per cent; mononuclears, 11 per cent.

Stool: Negative.

Spinal fluid: Normal.

Glucose tolerance test: Normal curve.

X-rays of teeth: Negative.

Tuberculin: One-tenth cubic centimeter of 1:1000 dilution of Koch's O. T., intracutaneously, the same amount subcutaneously, and 1.0 cubic centimeter of 1:1000 subcutaneously gave no reactions, either local, focal, or general. Prompt reaction was obtained on another patient with the same tuberculin.

X-ray of sinuses: Negative.

X-ray of chest: "There are diffuse, almost bilaterally symmetrical infiltration shadows extending along the linear markings of both hili. Neither the apices nor the bases are involved. Probably pneumoconiosis; but pulmonary tuberculosis cannot be ruled out" (Doctor Stone).

Biopsy of left epitrochlear lymph node, microscopic: "Picture shows almost entire replacement of gland by granulation tissue of the tuberculous type. There are aggregations of endothelial cells, giant cells, and lymphocytes. There are many fibrous tissue whorls fairly acellular, arranged in a network. Diagnosis: tuberculosis" (Doctor Bartlett).

DISCUSSION

Doctor Kerr: How much vision does he actually have?

Dr. H. Anderson (Intern): He can distinguish only light from darkness with the right eye; and read large newspaper headlines with the left. The destruction of vision is just a matter of degree as far as the two eyes are concerned.

Doctor Kerr: Do the ophthalmologists consider this a tuberculous lesion?

Doctor McCool: Yes. Optical iridectomy was considered for the right eye to improve vision, also because iridectomy in certain cases has a beneficial effect on chronic iritis. Besides local treatment the

patient should have small doses of tuberculin, increasing so gradually that there will be no reaction in the eyes.

Dr. H. Anderson: Yes, iridectomy was suggested; but I do not believe that all agreed that this would be the best course to take.

Doctor Kerr: Have there been any other suggestions for treatment?

Dr. H. Anderson: Nothing but dionin and scopolamin.

Doctor Kerr: Has the local lesion been altered by tuberculin?

Dr. H. Anderson: No.

Doctor Steven (Assistant Resident): The medical department has felt that this patient should be treated with tuberculin; and the ophthalmologists have agreed that this would be advisable, with the possibility of resorting to iridectomy later if necessary. There is always a possibility that one may stir up a tuberculous infection with operation. With tuberculosis anywhere else in the body, it is apt to be increased with operation.

Doctor Kerr: What dosage did you use?

Doctor Steven: We began with 0.1 milligram in 1:1000 solution; since we got no reaction, we increased the dose to 1.0 milligram in the same dilution.

Doctor Stone (x-ray department—demonstrates plates): This man had his teeth and sinuses examined. His chest shows a rather unusual picture. We have here, spreading out from both hili, a rather mottled density which hardly touches the apices, so that it is almost symmetrical in its spreading out on the two sides. There is no evidence of cavitation or fibrosis. The picture is that which we usually see with pneumoconiosis. I showed the plates to Dr. Ruggles, and he felt the same way about them. But we can't find anything in the man's history which would fit in with pneumoconiosis.

Doctor Kerr: He said he worked in this auto paint shop. Would dust from paint containing, say, 15 per cent lead, cause a condition like this?

Doctor Stone: I do not think so, Doctor Kerr. There has certainly been nothing reported like that in the literature. Even the ordinary coal dust will not cast a definite shadow.

Doctor Kerr: Wouldn't you think that a dense substance like lead would show up in somewhat this way?

Doctor Stone: If it were definitely deposited in the lungs, perhaps; but I do not think it is. This picture is not inconsistent with tuberculosis. You do see tuberculosis occasionally with this distribution. In fact, if it isn't pneumoconiosis, it must be tuberculosis.

Dr. E. Anderson (Resident): Wouldn't it have to be an active tuberculosis to give such an extensive lesion?

Doctor Stone: Not necessarily. It might be chronic. But if it is tuberculosis I should think it would have to be evident in the sputum. The sputum was negative, wasn't it?

Dr. H. Anderson: The sputum was negative; and the physical examination of the chest was inconclusive.

Doctor Stone: These are like exaggerations of the usual bronchial markings. If this is due to lead, it is the first case I have seen anywhere reported of it.

Dr. E. Anderson: I still think that there is considerable doubt as to the etiology of this case. If the tuberculin which was given was potent tuberculin, one would expect positive reactions in such large doses.

Doctor Schumacher: I am afraid that I can't throw much light on the picture here. It seems to me that the whole situation is very confusing—first the history of nerve changes; second, the symptoms in the abdomen; third, the eye condition. In the laboratory work there are a number of things that do not fit in very well with the ophthalmologists' diagnosis of tuberculosis of the eye. It would be hard to conceive of such a potent dose of tuberculin not stirring up a tuberculous lesion. These nerve changes have not

been explained to my satisfaction; and as far as the abdominal condition goes, there doesn't seem to be anything in his history to indicate that his trouble wasn't due to ordinary indigestion. I didn't know that qualitative tests for lead were being made in the clinic. I can't see what conclusions you are going to draw except that the man has extensive involvement of the eye. I would be inclined to be influenced by the eye men's diagnosis as far as the eye was concerned. I am wondering if this type of tuberculosis is the human type or a different type—bovine, perhaps—that it didn't respond to the tuberculin. He might respond to the bovine type of tuberculin.

Doctor Kerr: It is a little puzzling, I think, just what the cause of this young man's trouble is. It is evident that he has a serious lesion in his eyes, and is likely to lose the sight of both eyes if nothing is done. If possible, I think we should tie all the findings together here. From a clinical standpoint the condition of his eyes is tuberculous. The condition of his chest and his abdominal symptoms might be associated with lymphatic node involvement of tuberculosis. The lack of reaction to the tuberculin is difficult to understand. We might increase the dosage; with eight milligrams he might get a reaction. If we have to go up to ten or twelve, however, the test would be of doubtful value, because almost anyone would react to such a dose. The next step here is to find out about the tuberculin—whether it is potent or not. The neurological symptoms might be on a tuberculous basis. A lymph node might have been responsible for this lesion originally. Unless we can prove something else, I would strongly favor a diagnosis of tuberculosis. But we must be very cautious with the use of tuberculin with such a condition of the eye.

Doctor Connor (Pathology Department): I would like to say that not all things which look like tuberculosis histologically are tuberculosis. Longcope reported several years ago lymph node lesions, which Doctor MacCallum used in his class sets to demonstrate tuberculous lesions, that could not be proved to be tuberculous. On injection into guinea pigs no tuberculosis developed. A few years ago we thought that giant cells meant tuberculosis; and now we think the tubercle bacilli means tuberculosis. Here, however, there were many tubercles containing epithelioid cells. It is a typical picture of tuberculosis; and it would be foolish to diagnose it to the contrary.

Doctor Kerr: Has any of this biopsy material been injected into guinea pigs?

Doctor Connor: No.

Doctor Kerr: Do you ever inject this into fowls to rule out avian tuberculosis?

Doctor Connor: No. We have only done that for Hodgkin's disease, but without any results. But the avian tuberculosis should be found with the tubercle bacillus stain; it is the biggest and the longest of the bacilli.

Doctor Harvey (Neurology Department): He has the signs now of peripheral paralysis. I should like to know the possible etiology of the thing four years ago. He doesn't remember very clearly whether he had a sore throat or fever or not. The paralysis came on very suddenly; he woke up in the morning with it. That is the usual history we get in peripheral facial paralysis. Usually they complain of pain beneath the ear in the region of the stylomastoid, and sometimes a mass and pressure, though nothing can be palpated. Sometimes there is an enlarged gland, possibly the gland that drains the tonsils in the region just below. There might be some congestion around there that could explain the paralysis on a mechanical basis. Why this should persist, I do not know. Those things usually clear up rather promptly. The treatment is to immobilize the face for a week or so and use electricity or massage. They seem to clear up, as a rule, under treatment.

Doctor Kerr: How about tuberculosis? Does it cause paralysis?

Doctor Harvey: I do not know. I could not answer that question. I have not run into anything of that sort. But I doubt it very much.

Doctor Kerr: I have used tuberculin in retinitis with excellent results, combined with other kinds of therapy, starting with small doses, and kept up for many weeks.

Dr. E. Anderson: If he gives no response to tuberculin tests, would you expect results from tuberculin treatment?

Doctor Kerr: I couldn't answer that. One uses a dose of tuberculin which is just below the amount which gives a reaction. Doctor Schumacher, what is your opinion?

Doctor Schumacher: The optimum dose of tuberculin is the one just below the dose that gives the reaction.

Doctor McCool: The case under discussion illustrates very well the difficulties encountered in making a correct diagnosis of ocular tuberculosis. The ophthalmologist frequently is obliged to rely chiefly upon the tuberculin test, the clinical appearance of the eye, and the elimination of other etiologic factors, before he is able to satisfy himself that the lesion is tuberculous. The internist usually is of very little help, in a positive sense. I do not mean to minimize either his skill as a diagnostician, nor his willingness to do all in his power to aid in making the diagnosis. His position is somewhat analogous to that of the rhinologist when dealing with those diseases of the eye and optic nerve dependent upon sinus infection.

A positive finding is of distinct value, while a negative one by no means eliminates the sinuses as the responsible source of infection. I am sure that the internist will be the first to admit the difficulty sometimes encountered in locating a tuberculous lesion which may be responsible for the ocular disorder.

If it were entirely harmless, the method of using subcutaneous injections of old tuberculin in doses of 1 to 3 and 5 milligrams would be satisfactory. Its value is dependent upon the production of a local focal and general reaction. Not infrequently the focal reaction produced is of such severity as to jeopardize the integrity of the eye. This is especially true where the suspected lesion is near the macula, or in the optic nerve. A much safer method is to use smaller doses of old tuberculin intradermally: .001, .01, .1, and 1 milligram. A positive reaction with .001 and .01 milligram is indicative of an active tuberculous infection somewhere in the body. If the clinical appearance of the eye is of such a character as to suggest tuberculosis, and if the teeth, tonsils, sinuses, gall bladder, gastro-intestinal and genito-urinary tracts can be eliminated as sources of focal infection, we may assume for practical purposes, so far as treatment is concerned, that the lesion is tuberculous. Syphilis, of course, must be eliminated. Hamman and Wolmar said: "If it is found that the patient reacts markedly to interdermal injections of extremely minute doses of tuberculin, the presumption that there is some activity in the tuberculous infection of the patient is strengthened; and with some reservation, we may feel a greater certainty that the ocular trouble is tuberculous in origin."

In the treatment, it is the rule to start with very minute doses of bacillus emulsion or bacillus filtrate, increasing the dosage gradually, just short of a focal reaction. The duration of the treatment is usually from six months to a year.

Progress of cases since discussion above (Doctor Steven): Lymphadenopathy practically disappeared, and we naturally wondered if this were due to the tuberculin. The patient received one more injection subcutaneously of 1.0 cubic centimeters of 1:1000 solution in addition to those above. He left the hospital August 26, 1930.

Since discharge from the hospital, he has been followed in the eye and chest clinics. He has had tuberculin as follows: 0.1 cubic centimeters of 1:100 on September 5; 0.15 on September 12; 0.2 on Sep-

tember 18; and 0.25 on September 26. He has gained one pound in weight. Atropin and dionin have been used locally for his eyes.

The future treatment planned is to continue with increasing doses of tuberculin; and the eye department feels that an iridectomy on the right eye will be necessary very soon.

Spider Bites Are Given Much Notice, Says Entomologist.—While there have been many stories of persons suffering from the bites of the spider known as the Black Widow, there probably have been no more occurrences of this kind than in past years. This is the opinion of Dr. T. I. Storer, associate professor of zoölogy in the University of California College of Agriculture.

"This spider is common all through the warmer sections of California and Lower California," says Professor Storer, "and while it ordinarily does not inhabit the cooler coast regions and the mountain districts, it has appeared there, carried, undoubtedly, through the transportation of such materials as wood."

While the bite of the Black Widow is usually followed by very painful results, it is seldom fatal, says Doctor Storer. He points out that in one hospital where thirty-eight cases of the bite from this spider have been handled in the last six years, there was but one fatality, that of an old man of very weakened resistance.

"However," he says, "the bite is not to be taken lightly, and a person who has been bitten should consult a physician at once. In southern California, where for years there have been many cases annually, it has been found the best treatment is a convalescent serum, made from the blood of a person who is recovering from the effects of a bite."

The *Latrodectes mactans*, as the Black Widow is technically known, is a rather large black spider, with unusually long legs. From its shiny appearance it also is known as the shoe button spider. Under its abdomen are two triangles of red or orange, touching at their points so as to suggest the third name by which the insect sometimes is known, the hour-glass spider.

Throughout the state this year there have been published many articles telling of persons who have been bitten by the Black Widow. This has led to the assumption on the part of many that the insect has increased in numbers or that it is unusually active this summer. Doctor Storer believes that it is only the unusual amount of publicity that has been given the spider that it has taken the center of interest.—*University Clip Sheet*.

Death of R. H. Babcock.—The death of Dr. Robert Hall Babcock, who has long been recognized as an outstanding cardiologist, marks the passing of one of the most unique and distinguished characters in the medical profession for several generations. Doctor Babcock died recently at Princeton, Wisconsin, at the age of seventy years. Up until the time of his death he was recognized as one of the foremost authorities on heart ailments.

Doctor Babcock became blind when he was twelve years of age, but notwithstanding this fact he acquired a well-rounded education at the Institute for the Blind in Philadelphia; Olive College, Michigan, and finally secured his degree in medicine in the University of Michigan. After this he continued to study in Continental Europe.

About twenty years ago Doctor Babcock wrote a textbook on "Diseases of the Heart" which was used by many students of medicine, both as a textbook and for reference work.

Once, upon being questioned as to whether or not he considered his blindness a handicap in his specialty, Doctor Babcock replied that he could see as much of the heart as any other physician.—*International Medical Digest*, August 1930.

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An open forum for brief discussions of the workaday problems of the bedside doctor. Suggestions for subjects for discussion invited.

HYPERTHYROIDISM

THE PATHOLOGY OF THYROID CONDITIONS

WILLARD E. KAY, SAN FRANCISCO.—The pathology of hyperthyroid conditions is chiefly found in the clinical entities; exophthalmic goiter and adenomatous goiter with hyperthyroidism.

The morbid anatomy of exophthalmic goiter, so far as the thyroid gland is concerned, may be summarized as a parenchymatous or follicular hyperplasia. The cause is thought to be some powerful stimulus acting through the nervous system to which the gland responds by hyperplasia and hyperfunction. In the process the cuboidal epithelium lining the normal alveoli changes to high cuboidal and columnar cells and a striking proliferation takes place. This proliferation causes infoldings and plications which in turn form papillary folds that encroach upon the cavities, frequently filling up the alveolus. There is a marked increase in the vascularity; the blood vessels become dilated, tortuous, and later hypertrophied. The colloid in the alveoli is diminished and changes in character from a thick amber-colored, gelatinous material to a thin, stringy, limpid fluid. An increase and fibrosis of the stroma takes place and a lymphoid hyperplasia. The extirpated gland is fleshy amber red, lobulated, and firm. The cut surface, after the blood has run out, is finely lobulated, opaque, and of a grayish color. Colloid is generally absent, though in some, colloid is abundant and the gland less opaque. The size of the gland varies considerably, but it is not greatly enlarged. It frequently cannot be palpated in serious disease. At operation, independent of size, it is found to be very vascular and is friable. After iodine administration the gland becomes firmer and strikingly less vascular. Involution takes place within the gland and there is a tendency to return to the colloid stage. The colloid not only increases in amount, but becomes more gelatinous. Some believe the favorable action of iodine is dependent upon the rapid formation of the colloid which mechanically blocks delivery of thyroxin to the general circulation or that the colloid, filling the alveoli, mechanically compresses the lining cells, thus reducing their secretory powers.

In contra-distinction to the above, in adenomatous goiter with hyperthyroidism there is no characteristic pathological picture. It is the symptoms and clinical findings that determine its toxicity. The onset is insidious and signs of hyperfunction are not recognizable, usually,

until middle or later life. Why the cells begin to overfunction and produce hyperthyroidism is unknown. In some instances iodine seems to be the inciting cause. The adenomas are nodules of thyroid tissue surrounded by a fibrous capsule separating them from the remainder of the gland. They may be multiple and vary in size from that of a marble, or smaller, to that of a man's fist, and may be so numerous as to practically replace all the thyroid tissue. Not infrequently they are so incorporated in the gland as to give a feeling of denser areas rather than nodules. The adenomatous areas may be colloid in type or show involution. The surrounding gland may vary in its pathological state and occasionally hyperplasia, such as occurs in exophthalmic goiter, is found. After iodine administration no typical changes occur in this condition.

* * *

HEART MANIFESTATIONS

A. B. COOKE, LOS ANGELES.—Clinically there are two very different classes of goiter—the toxic and the nontoxic—though it should be noted that any given case may at some time in its life history belong to both classes. Cardiac disturbance occurs as a manifestation of the toxic variety. Usually it is the first symptom noticed by the patient, and in a large proportion of cases is the reason assigned for seeking medical advice.

Tachycardia, palpitation, or "pounding" as it is often called; throbbing in the head, discomfort—sometimes amounting to actual pain in the region of the heart—shortness of breath, etc., one or all may enter into the patient's complaint. It may be in certain cases that there is a goiter of long standing; in others that there has not been and is not now a visible goiter. In either event it may be extremely difficult to convince the sufferer of the real nature and cause of the heart symptoms. In the former case the objection will be urged that the goiter has been present many years and the palpitation only began a month ago. In the second case any suggestion as to a possible goitrous origin of the heart trouble is apt to be both denied and resented.

Unfortunately, hyperthyroidism as an etiological factor in heart cases is often overlooked. Permanent damage not infrequently results. This is particularly to be feared in borderline cases, where thyroid pathology is so often obscure and unsuspected. If the goiter is toxic at the time, a reliable basal metabolism reading will usually indicate the true relationship. If on the other hand, even in the presence of a definite goiter, the test proves negative, it is quite possible for the causative sequence to remain undiscovered.

Ed. Note.—The October number of California and Western Medicine printed a discussion on "Strabismus—When to Operate." In the correspondence column of the Miscellany Department of this number is printed a letter from Dr. Roderic O'Connor, who wrote the opening discussion, to which the attention of readers is called.

For reasons intimated in the foregoing, the writer long ago came to regard the toxic adenoma as a more dangerous form of thyroid dyscrasia than true exophthalmic goiter. The insidious development of the cardiac damage makes it so. The onset of exophthalmic goiter is generally sudden and violent and the patient at once realizes that aid must be sought without delay, while the milder disturbances of toxic adenoma will be tolerated for months or years, sometimes in ignorance, but more often because the patient is not wholly incapacitated. This is one among a number of weighty considerations which render it justifiable—even imperative—for us to advise the removal of the adenomatous goiter when it is first seen, whether or not it is active at the time.

* * *

SYMPTOMS AND DIAGNOSIS

JOHN HUNT SHEPARD, SAN JOSE.—The so-called "cardinal symptoms of exophthalmic goiter," *i. e.*, exophthalmos, tachycardia, tremor, and enlargement of the thyroid gland, have been so frequently reiterated in textbooks, lectures, and periodicals, that only too frequently we hesitate to make a diagnosis of this malady unless all four of these signs and symptoms are present. We have learned to think of exophthalmic goiter in these terms instead of in terms of cellular and biochemical pathology.

The etiology of exophthalmic goiter is not known. The cellular pathology is quite well understood. The biochemical pathology is only partially understood. Its signs and symptoms are many and their chronological appearance and intensity are subject to wide variations. The exophthalmos rarely develops within three months of the onset of the mental irritability and excitement and is absent throughout the course of the disease in about one-fourth of the cases. The enlargement of the thyroid gland may be so slight that, in patients with heavy neck muscles or a thick layer of adipose tissue, it may be impossible to demonstrate any hypertrophy. The fine tremor, most easily demonstrated in the outstretched hand, is rarely an initial symptom and may never develop. Tachycardia, probably always present to a more or less degree, may be so influenced by personal and extrinsic causes as to be unreliable.

Clinical and experimental studies show that in exophthalmic goiter we are not only confronted with a hyperthyroidism, but also with a dysthyroidism. The known thyroid hormone, thyroxin, has three iodine atoms in each molecule. In exophthalmic goiter it is believed that there is liberated an incompletely iodized thyroxin molecule containing only two and perhaps only one atom of iodine. It was upon this conception that Plummer, in 1922, began the use of Lugol's solution in the preoperative treatment of these patients.

The one constant finding in all patients suffering from this disease, and in its absence a diagnosis of hyperthyroidism should not be made, is an increase in their basal metabolic rate, which is an index of their oxygen consumption at basic

rest. To permit of this increased tissue burn, it is essential that there should be an increase in the per minute output of the heart. This increased per minute output of the heart can be accomplished in one of two ways; either by increasing the number of heart beats per minute or by increasing the amount of blood leaving the heart at each beat.

The four most commonly present physical findings in hyperthyroidism are clearly explained on the basis of the increased metabolism. They are: increase in the pulse rate, increase in the pulse pressure, increase in the moisture of the skin, and loss of weight. The degree of variation from normal of these four physical findings bears a direct ratio to the severity of the hyperthyroidism as measured by the basal metabolic rate.

There is a characteristic difference in the blood pressure readings in hyperthyroidism of exophthalmic goiter and hyperthyroidism of toxic adenoma. In the former the diastolic blood pressure is usually normal or below normal, while the systolic blood pressure is normal or above normal; in the latter both the diastolic and systolic blood pressures are above normal. In both, the pulse pressure is above normal and with a given basal metabolic rate, the pulse rate varies inversely as the pulse pressure. Upon the two depends the per minute output of the heart.

The increase in oxygen consumption results in an increase in heat production which the body largely disperses through the skin, and this accounts for the increase in skin moisture.

The increase in tissue burn results in weight loss. This, however, may be compensated for by an increase in food consumption in which event there may be no loss of weight; even occasionally a slight weight increase is seen.

If in approaching the diagnosis of hyperthyroidism we learn to think in terms of increased metabolism and forget the so-called "four cardinal symptoms," then check our opinion with a reliable basal metabolic rate determination, extreme weight loss, marked muscular weakness, cardiac irregularities, advanced exophthalmos with its accompanying eye signs, pronounced tremor, vomiting and diarrhea, all signs of severe and relatively long-standing hyperthyroidism, then hyperthyroidism will be seen as infrequently as a walled-off appendiceal abscess.

A Bountiful Bequest.—By the will of James D. Phelan, whose death occurred at Saratoga on August 7, there was left an endowment of \$1,000,000 to be known as the James D. Phelan Foundation for the purpose of providing nursing care for the needy sick of San Francisco in their homes. This generous gift, as also other provisions in the will of Mr. Phelan, places this beloved citizen of San Francisco among the great and wise philanthropists of our country.

Foundations for the needy and sick are not common in our western states, in fact this foundation is the first on the Pacific Coast that has been established for the specific purpose of caring for the sick in their homes. It comes at a significant time when there is much attention being given to the matter of medical and nursing care in the average family and when our efforts are being directed toward providing good nursing service to people at a reasonable price.—*Pacific Coast Journal of Nursing*, October 1930.

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Leaflet Regarding Rules of Publication.—California and Western Medicine has prepared a leaflet explaining its rules regarding publication. This leaflet gives suggestions on the preparation of manuscripts and of illustrations. It is suggested that contributors to this journal write to its office requesting a copy of this leaflet.

EDITORIALS*

COUNTY SOCIETY BY-LAWS—IN RELATION TO DUES AND MEMBERSHIP

The present constitution and by-laws of the California Medical Association were unanimously adopted by the House of Delegates on May 8, 1929, at the fifty-eighth annual session at San Diego.

Letters which have been received at the central office of the Association indicate that as yet a number of the county units have not amended their own rules of organization to conform with the present state society by-laws on payment of dues and on lapse of membership through non-payment of dues.

Since the by-laws of the component county units of the California Medical Association must be in harmony with those of the State Association, and because of misunderstandings which arise on the part of members, when such county society by-laws are different in their provisions on the matter of dues, the attention of the officers and members of each county society is again directed to the importance of making the necessary amendments where such are needed.

Chapter X, Section 1 of the present by-laws of the California Medical Association provide:

The annual assessment or dues shall be payable on or before January 1 of the year for which they are levied.

* Editorials on subjects of scientific and clinical interest, contributed by members of the California Medical Association, are printed in the Medicine Today column, which follows.

Concerning termination of membership because of nonpayment of dues, Chapter II, Section 2, Item (b) of the State Association by-laws provide:

(b) If the annual assessment of dues payable to this Association by any member of this Association is not paid on or before April 1 of any year, such member shall automatically lose his membership in this Association as of April 1 of such year. The Council of this Association, in its discretion, upon payment of such unpaid dues, and any other assessments or dues accruing thereafter, may at any time reinstate such member.

No matter what the by-laws of a component county society may state to the contrary, these excerpts from the by-laws of the California Medical Association mean that the annual assessment or state society dues are due and payable from every member of the California Medical Association on or before January 1 of each year, and that on April 1 of any year, if the dues of any member remain unpaid, then such member automatically loses his membership in the California Medical Association, and the name of such a member is then deleted from the mailing list of the official journal and other publications, until such time as membership is reestablished as otherwise provided in the state society by-laws.

County medical societies which have not amended their by-laws to conform to the state society provisions here quoted are urged to do so, in order that their members be not confused as to the time periods permitted for payment of dues.

LETTER OF OCTOBER 6 AND ITS ENCLOSURE

Council Minutes Dealing Therewith.—During the month of October a letter of date of October 6, with an enclosure letter of date of May 14, was sent by some San Francisco colleagues to all members of the California Medical Association.

Mention is made thereto in this column in order to call the attention of members who are interested, to the minutes of the last two meetings of the Council which bear on the same subject. The Council meeting of June 4 was a special meeting called to consider the enclosure letter of date of May 14. At the regular quarterly meeting of the Council held on September 27 some later developments were considered. These minutes will be found in the California Medical Association column of this number of CALIFORNIA AND WESTERN MEDICINE, on pages 836 and 838.

CAN A CORPORATION PRACTICE MEDICINE—COURT RULES NOT

An Interesting Decision by Judge Samuel R. Blake of the Los Angeles Superior Court.—In the Medico-Legal column of the Miscellany department of this number of CALIFORNIA AND WESTERN MEDICINE is printed a digest of the decision rendered by Judge Samuel R. Blake of the Superior Court of Los Angeles. The decision was on a proceeding file by Granville Mac-

Gowan of Los Angeles, against the Medical Service Corporation, a corporation with its major offices of business in Los Angeles.

The question, whether a corporation can be organized to practice a learned profession such as law or medicine, has recently been much discussed in those two professions. The opinion handed down by Judge Blake is important and worthy of perusal.

COMMENT ON THIS AND THAT

Rural Obstetrics As Practiced by Peck of Utah.—One of the special articles in this number of CALIFORNIA AND WESTERN MEDICINE is a contribution from Dr. J. H. Peck of Tooele, Utah, a small town of some five thousand population, located in a typically western environment. Attention is called thereto because our Utah colleague in his analysis of some one thousand obstetric cases—in work done under far different conditions than those met with in urban centers—has shown how it is possible to use the essential elements of our present-day scientific knowledge so as to obtain results in practice equal to or better than those of many hospitals.

Peck's description of his technique—for his adaptation of methods to dirt-floor cabins required a technique in order to be efficient and successful—is most interesting, not only to physicians who practice obstetrics, but also to those who do not. His statistics demonstrate that if all things are observed that are vitally important in judgments and procedures, then the end results should measure up most favorably with those obtained in places and surroundings where the accessories and refinements of care and treatment are stressed or superstressed. The paper and its discussion by colleagues dealing with analogous economic conditions and patients in a large city, present an interesting portrayal and will probably be much enjoyed by many readers of CALIFORNIA AND WESTERN MEDICINE.

* * *

Illness Has Disagreeable Economic Phases.—The cost of illness is everywhere much commented upon. The criticisms perhaps are not based so much on illness itself, or even on the faulty conditions and habits which so often favor the development of illness, as on the fact that with illness financial income is often not only cut off, but expenses are most materially increased. These additional expenses for illness—a something from which one gets no pleasure—are not pleasant expenses to many citizens. For our modern-day lay psychology and habits of living make many persons afflicted with illness or injury look upon disease, with its physical and economic discomforts, as something altogether uncalled for. This feeling of dissatisfaction seeks a person or an outlet other than the individual himself on which to cast the blame for the disagreeable economic distress. One of the results of such dissatisfaction is that the physician who is called

in, and whose services are most welcome and seemingly appreciated at the time when distress is first relieved, or health is conserved or life even saved, seems a good mark upon whom can be vented the dissatisfaction which especially comes to many patients when the bill for professional services is rendered. This prevalent and understandable psychology explains perhaps, in part, why so many contributions and investigations on the "high cost of medical care" have appeared in the lay and medical press.

Now illness is a something that practically comes to all persons at some time during life, and if we all measured up to full efficiency we would make provision in our personal financial budgets to enable us to care for such illness. But the time is not yet ready for such 100 per cent efficiency. There are too many more desirable things or habits of modern-day living which first must be satisfied.

Let us digress for a bit and briefly consider two habits of modern-day American living which have to do with voluntary mass expenditures by the people of the United States which in total amount run into vast sums approximating those of illness.

‘ ‘ ‘

"Beauty Aids and Culture"—One of the *Ten Major Industries of the United States*.—The expense of maintaining personal beauty was discussed by the chief of the chemical division of the United States Department of Commerce in an oral statement on October 1. It should be little less than an astounding fact to be told that this comparatively new industry of supplying so-called beauty aids now ranks in the group of the "first ten" of America's industries. This "enormous expansion in the use of toilet waters, perfumes, cosmetics, lotions, facial soaps, etc., as well as a rapid development in the field of beauty services," is all comparatively recent. Translated into money equivalents the annual volume of this "beauty business" now approximates the sum of one billion dollars! One-half of this total expenditure was stated to come from about four million of the forty million American women. The wholesale value of the beauty aids approximated \$250,000,000 and the retail costs added \$125,000,000 to the above, the remainder of the enormous sum being covered by the personal services of "beauty doctors" or cosmeticians, licensed and unlicensed.

‘ ‘ ‘

The High Cost of Cigarette Smoking.—Let us turn now to another luxury of the human race, and one, the sins of which would formerly have been placed solely at the feet of the male population, but now no more. On October 14, the chief of the tobacco division of the United States Department of Commerce announced that, in spite of the current business depression in our country, the total of cigarette sales for this year would exceed those of last year. And last year 119,000,000,000 cigarettes were produced, or one thousand for capita! The statement was also

added that this continued consumption of cigarettes at a time when business depression exists would indicate "that the tobacco industry was nearly shock proof." The total money cost of the 119,000,000,000 cigarettes used this year was not given by the tobacco bureau chief, but that it is very large and in harmony with the one billion dollar annual beauty cost, is very evident.

* * *

The above are only two of the modern-day former luxuries which, in the minds of many of our lay fellows, today are little less than necessities.

Is it any wonder, then, that when illness comes, and particularly when the time arrives for paying the costs incident to illness, that a howl and a yowl should many times go up, and the members of the medical profession be criticized as being nowadays too commercialistic.

The actual facts are:—that after luxuries, seeming necessities, and real necessities are paid for (in full or on time payments), it is no wonder that very little money is left with many citizens with which they would be in position to defray the legitimate expenses of illnesses which come to them.

* * *

Caffein "Pepping" in Cereal Beverages Prohibited in Pennsylvania.—The Bureau of Foods and Chemistry of the Pennsylvania Department of Agriculture in October promulgated an order that a cereal or similar type of nonalcoholic beverage which had been doctored or pepped up with caffein would hereafter be considered as having been adulterated, misbranded, and unlawful. The bureau based its opinion upon the fact that "caffeine had no place as an ingredient in cereal beverages because the recognized standard for beverages of this class contains no caffeine, even a trace, as a normal constituent." The bureau also pointed out that in its analyses and investigations no case had come to its attention in which caffeine had been added to tea or coffee to "pep" them up.

This is an interesting decision and most physicians will probably agree that the order is much needed. One need only to observe the large number of girl clerks and other persons at soda fountains to appreciate to what extent such artificial stimulation in cold drinks with ingredients unknown as to quality and quantity has come into general use. Better, by far, if a stimulating beverage is desired that a warm cup of good coffee or tea be taken.

* * *

Ginger Paralysis.—The outbreak of the "Jamaica ginger paralysis" which was so much commented upon in the daily press during this last year, and which because of the coincident occurrence of infantile paralysis in many localities, as well as its relationship to the Eighteenth Amendment, led to special interest in the subject, at last has been solved. Some 4837 cases of Jamaica

ginger paralysis were reported officially, and the justice division of the prohibition department estimates that, in all, about 20,000 cases occurred.

The United States Public Health Service on October 8 announced that the paralysis which was observed in these patients, was due to the ingestion by the persons afflicted of a substance which "has been identified as tri-orthocresyl phosphate," a chemical which is often used in the manufacture of varnishes, shellacs, and similar preparations.

This substance has certain properties very much akin to those of real ginger. The United States Public Health Service made many analyses and then tested out the different constituents in monkeys and rabbits, the rabbits dying when the tri-orthocresyl phosphate was given orally, but the monkeys resisting the substance unless it was given subcutaneously. Evidently here was an example of man being partly in the rabbit as well as in the monkey class. (No pun intended.)

It is not known whether the above referred to animal experimentation has been noted by the antivivisectionists, who would no doubt object bitterly to this research on animals even though seemingly necessary, in order to arrive at proper knowledge of a chemical cause that was playing such havoc with so many citizens of some of the Midwest and Southern States who had innocently indulged in Jamaica ginger celebrations. Here again science has come to the aid of the Eighteenth Amendment and brought forth knowledge showing that some varnishes and shellacs contain ingredients which possess possible medicinal properties, even though of a kind where the less familiarity the better.

* * *

Self-Medication for Drug Addictions—Through Utilization of Rabies Inoculations.—Out of the holy land of Egypt comes a story to which publicity was given on October 13 by a division of the United States Department of State. This report reveals a complex of present-day scientific advancement with ancient "barber-surgeon" efficiency, mixed with the ever present and always existing human credulity and self-experimentation, that is quite out of the ordinary. The story is given out with the sanction of the Central Narcotics Bureau at Cairo. The keen observation of the self-experimenting Egyptians suggests the possibility that Pasteur antirabic inoculations perhaps may be of value in the treatment of drug addictions. If so, acknowledgment should be made in due time to the obscure Egyptian citizen whose shrewdness enabled him to act so efficiently in the double rôle of "barber-surgeon" and personal friend.

The essentials of this "medical discovery" were as follows:

At the Cairo Anti-Rabic Institute it is expected that the patient will bring with him, or have sent up later on, the dead dog which did the biting. Now, from a certain small village in lower Egypt came for a time an unusual number of patients who had the fang marks of dog bites. But no

dead dogs were brought or sent in. This led, finally, to close interrogation and to the solution of the mystery.

It seems that in that village were many heroin addicts. One such was actually bitten by a mad dog, was sent to the Anti-Rabic Institute and returned cured also of his drug-addiction habit. His unfortunate heroin addict friends concluded that the Pasteur inoculations had done this.

Now the government gave the inoculations only to persons actually showing dog bites. How then to get the dog bites, without being actually dog bitten? The village barber was appealed to and found the solution. He obtained the jaws of a dead dog, fitted them with a metal spring, and then from time to time had this apparatus "bite" one of the addicts, who then went to the Anti-Rabic Institute for treatments.

Whether the participants of the rabies hoax were actually cured of their drug addictions is not stated in the communication of the United States Department of State. But that this particular "barber-surgeon" showed a native shrewdness out of the ordinary and that the drug addicts likewise showed themselves to be keen clinical observers, even though they committed the fallacy of drawing a general conclusion on the effectiveness of a remedy from a single "cure," can hardly be doubted.

Doctor James's Powder—The Remedy That Killed Goldsmith.—A curious and interesting leaflet of four quarto pages has recently come into the possession of Messrs. P. J. and A. E. Dobell, the London book-sellers. This is what may be the only surviving copy of the prospectus of a famous eighteenth century patent medicine, Dr. James's Powder for Fevers, a specific which has its place in literary as well as in medical history.

Boswell's "Life of Johnson" is full of references to Dr. Robert James (1705-1776), his works and medicine. Johnson at one time had a high regard for the abilities of James, who had been his schoolfellow at Lichfield, and from whom, he tells us, he acquired his own knowledge of medicine. Moreover, he helped James with his "Medical Dictionary" and wrote the dedication for it. He coupled James, too, with Garrick, when he spoke of one friend who had lengthened life and one who had gladdened it.

After this it is somewhat strange to find that in the last year of his life Johnson seems to have given a different opinion, for he wrote to Doctor Brocklesby:

"I never thought well of Doctor James's compounded medicines; his ingredients appeared to me sometimes inefficacious and trifling, and sometimes heterogeneous and destructive of each other. . . . We will, if you please, let this medicine alone."

It would have been well if Oliver Goldsmith, another literary admirer of James, had left his medicine, and particularly his powder, alone. When Goldsmith was seized with his last illness he called in to attend him William Hawes (1736-1808), an admirable medical man practicing in the Strand, and still remembered as one of the founders of the Royal Humane Society. Hawes found Goldsmith very unwell and convinced that the proper treatment of his illness was by James's Powder. Hawes disagreed strongly, and argued with Goldsmith that his complaint was "more a nervous affection than a febrile disease," and that, therefore, James's Powder was unsuitable. But Goldsmith insisted on having James's Powder, which was duly sent him on March 25, 1774, and on April 4 poor Oliver Goldsmith died.

One of the interesting literary connections of this medicine is that the agent for its sale was Newberry, the publisher for whom Goldsmith did so much work. Possibly it was this connection which disposed him so violently and disastrously in its favor. The prospectus gives long instructions for the correct use of the powder "in acute continual Fevers, the Small-Pox, Measles, Acute Rheumatisms, Colds, Headache, and all Inflammatory Diseases," beginning with the advice that "If the Patient is of a strong Constitution, Young and full of Blood, it is prudent to take away ten or twelve ounces"—a violence which few would care to suffer to-day for the cure of a mere "headache."

An occasional "I" drops into the prose of this prospectus so that presumably Doctor James must himself be given the credit for its composition. Yet one cannot help toying with the idea that perhaps he may have had the assistance of his friend Doctor Johnson with here and there a point of style. Or might possibly Doctor Goldsmith himself at the bidding perhaps of Mr. Newberry have lent his pen to the composition? If so, it was one of Fate's best strokes of irony.

Both Horace Walpole and Gray were firm believers in Doctor James's nostrum. The latter, writing to Mason in the early days of their acquaintance, when a malignant fever was prevalent, advises him:

"Pray remember James's powder; I have great faith in its efficacy; I should take it myself."

To William Cole, the antiquary, who had put off a visit to Strawberry Hill because of a cold, Walpole wrote:

"Your illness is the worst excuse you could make me; and the worse, as you may be well in a night, if you will, by taking six grains of James's powder. He cannot cure death; but he can most complaints that are not mortal or chronic."

When George III soon after his accession was attacked by a "strange and universally epidemic cold" Walpole sent the news to Mann at Florence:

"He (the King) had a violent cough, and oppression on his breast, which he concealed, just as I had; but my life was of no consequence, and having no physicians in ordinary, I was cured in four nights by James's powders, without bleeding. The King was bled seven times, and had three blisters. Thank God he is safe!"

In his correspondence with Miss Berry when she was abroad and her health was causing him great anxiety, Walpole canonized the inventor of his favorite remedy:

"I do believe St. James's blessed powder has cured your fever. . . . St. James's day (the day of her cure) has been my only holiday in ten months—do not give him a post-vigil that may destroy his festival. . . . I recommend you to St. James of compost antimony, to whom St. Luke was an ignorant quack."

The powder, however, failed to save the life of Lord Waldegrave, who took it on Walpole's advice when he was sickening for smallpox, and died a few days later.—*Weekly Times*, January 2, 1930.

(Doctor James's Powder was composed of oxid of antimony and calcium phosphate. It was, impartially, used for both George Washington and King George III. A good account of Doctor James can be found in the "Annals of Medical History," New Series, 1, 180, March 1929.—Ed.)

Diagnosing Is Practicing.—That a physician who confined his activities to just diagnosing, without prescribing or administering remedies is actually practicing medicine in the state and must be licensed, was the opinion of the attorney general this spring. In the specific case referred it was held that physicians conducting health centers must be licensed even though they receive their compensation from other sources than the patient and do not prescribe or administer remedies for such conditions as may be found.—*Wisconsin Medical Journal*, July 1930.

MEDICINE TODAY

This department of California and Western Medicine presents editorial comment by contributing members on items of medical progress, science and practice, and on topics from recent medical books or journals. An invitation is extended to every member of the California, Nevada and Utah Medical Associations to submit brief editorial discussions suitable for publication in this department. No presentation should be over five hundred words in length.

Urography.—Research studies in the field of urography have shown increased activity in recent years. We have witnessed the improvement of the radio-opaque medium used in urography performed from below and the introduction of a fairly satisfactory method of urographic visualization by the intravenous route.

The widely used 12½ per cent sodium iodid, while possessing many advantages as a urographic medium, is an electrolyte and, therefore, in many cases irritating to the urinary mucous membrane. This has led urography to be a distressing procedure in a number of instances. While the primary object of urography is to visualize the urinary tract so as to demonstrate the normal and abnormal conditions, the comfort of the patient during a cystoscopic study should be considered. Cognizant of these facts and desiring to make urography a more benign procedure, the field of halogenated oils, especially the iodized oils, was investigated. Since the introduction of lipiodol, an iodized poppy-seed oil, by Sicard and Forestier in 1922, these compounds have come to be more extensively used for radiographic diagnostic purposes in the various systems of the body. Of special importance is their nonirritability and chemical inertness as compounds. Though casting excellent radiographic shadows, iodized oils gained little favor in the urinary tract because of their great viscosity and nonmiscibility with the urine. The successful use of campiodol emulsion since October 1928 has solved these disadvantages and yielded a nonirritating urographic medium. Campiodol is an iodized rape-seed oil synthesized by Frazier, Glaser and Raiziss, and contains 44 per cent elemental iodine. By using the emulsion, a mixture of campiodol, acacia and distilled water, a urographic medium (of 11 per cent iodine content) suitable to both urologist and patient, has resulted. The writer has successfully used campiodol emulsion in over two hundred and fifty cases with gratifying results in all parts of the urinary tract.

Intravenous urography dates back to 1923, when Osborne, Sutherland, Scholl, and Rowntree were the first to attempt the visualization of the urinary tract by means of intravenous injection of a ten per cent solution of sodium iodid. In 1924 Rosenstein and von Lichtenberg repeated the work, using the iodid in conjunction with the perirenal pneumoradiographic method. Volkmann in 1924 and Lenardouzzi and Pecco in 1927 attempted similar procedures, as did also Hyrntschak in 1928. Roseno in 1928-1929 was

the first to achieve any fair results, using a solution which contained the sodium iodid bound to the urea molecule. This, however, was associated with some reactions.

In 1929 the use of uroselectan in intravenous urography was first recorded by Swick and von Lichtenberg. This work began with the use of selectan-neutral, a preparation made by Binz and R  th and utilized against coccal infections for a long time on the medical service of the St  dtisches Krankenhaus, Hamburg-Altona. The study of its excretion and its iodine content (54 per cent) led to the thought that it might be applicable for radiographic purposes in the urinary tract. The first experiments carried out on rabbits gave no roentgen visibility of the biliary tract, but with the ligation of the ureters a fairly good outline of the urinary tract was obtained. Studies on excretion revealed 75 to 80 per cent of the injected iodine in the urine. This substance, however, caused headache, nausea, vomiting, and other symptoms. In humans the urinary bladder was always well outlined and occasionally the upper urinary tract.

Encouraged by these results, Binz and R  th replaced the methyl radical with sodium glycine and reduced the iodine content (thereby increasing the solubility) and with that produced a new compound uroselectan (sodium 2 oxy—5—iodopyridine—N—acetic acid). This product is non-toxic, very soluble in water, neutral in reaction, and under normal conditions is almost entirely excreted through the urinary tract in eight hours. It has produced roentgenograms of the urinary tract to a fair degree of visualization within fifteen minutes of injection. The authors have indicated that this type of urography may be used whenever ureteral catheterization is dangerous or mechanically impossible; in cases of lower genitourinary tract infection; in the presence of bleeding; in cases of implanted ureters; and in children. Intravenous urography is naturally restricted in its scope. Only with continued clinical use and experience will the efficiency of uroselectan (or similar substances) and intravenous urography be determined. In the hands of skilled clinicians and used upon selected cases, it may serve as a further enhancement to the present field of urography. It is doubtful if the intravenous method of urography can displace that performed from below, but for the present it appears that it may be a useful supplementary asset in selected cases.

ADOLPH A. KUTZMANN, Los Angeles.

Reduction of Fractures and Dislocations Under Local Anesthesia.—The use of local anesthesia for the reduction of fractures and dislocations is a practical procedure deserving more widespread usage. Twenty cubic centimeters of two per cent novocain solution injected into the hematoma surrounding the ends of the fragments will allow of manipulation of the fragments without pain.

In the Vienna Industrial Clinic of Lorenz Böhler, local anesthesia is used exclusively for the reduction of simple fractures. The technique is not difficult. It should not be necessary to remind those using this method that strict asepsis is essential. A 20 cubic centimeter Luer, 22 to 24 gauge needle 1.5 inches in length, and ampoules of 2 per cent novocain are the materials required. The skin is prepared as for a spinal puncture, or intravenous therapy. Needle is passed through the skin and other soft parts, avoiding region known to contain large vessels and nerves, into the hematoma. If the end of the needle is in the space surrounding the ends of the fragments, old fluid blood may be aspirated into the syringe. This aspiration of old blood should always be carried out, otherwise an intermuscular or an interfascial injection will be made and no anesthesia of fragments result. The anesthesia lasts as long as two hours, and if radiographs show the fragments need further adjustment it is not necessary to reinject.

For dislocations the novocain is injected around the dislocated epiphysis and into the joint capsule. The use of local anesthesia has not proved as satisfactory for reduction of dislocations as for the reduction of fractures, in the author's hands.

EDMUND BUTLER, San Francisco.

The Treatment of Laryngeal Tuberculosis. The upper respiratory passages no doubt play a very important rôle in the course of pulmonary tuberculosis.

Under normal conditions they are the first line of defense for the lungs; under pathological conditions, however, they lose their protective value and may become a causative factor in the development of pulmonary tuberculosis.

For this reason it has been advocated that rhinolaryngology be included in the training of all tuberculosis specialists, and therefore, in many sanatoria, throat departments are now being established. The main purpose of a throat department is to discover the incipient forms of tuberculosis of the larynx at the time when they are most responsive to treatment. Their development follows a subjectively asymptomatic course, and they may thus escape the doctor's attention without routine examination. Another purpose is to properly detect nontuberculous pathological conditions, which require special systemic treatment, that a maximum of benefit may be obtained during the patient's stay at the sanatorium.

In consideration of the treatment of tuberculosis of the larynx, we must mention briefly its etiology:

1. Infection by contact, occurring most frequently in the first year of the disease. In this type, which permits a comparatively favorable prognosis, the soft parts of the larynx are affected.

2. Infection through the blood or lymph stream during the allergic stage or during the stage of relative anergy. Specific involvement of the soft parts of the larynx only is at that stage very rare; the cartilaginous parts are mostly involved, and the prognosis is decidedly unfavorable. Involvement of the cartilage undoubtedly signifies a break-down of the defenses of the body.

Pathologically, anatomically, and clinically, the latter cases differ from the former, for here the process starts, not with the changes in the voice but more so with dysphagia and pain, caused by the involvement of the cartilaginous framework of the larynx. These menacing symptoms impair the nutrition of the tuberculous patient, aggravate the processes in the lungs, and ultimately are a frequent contributory cause of death.

Treatment involves a consideration and utilization of the therapeutic measures adapted for combating the foci in the lungs. Numerous reports show that relatively far advanced cases can obtain complete cure after the establishing of artificial pneumothorax or after phrenicotomy, while the larynx receives conservative treatment only.

The main requisite for a successful treatment is absolute silence and the control, by the will power of the patient, of superfluous coughing. His co-operation in this respect is absolutely necessary.

Laryngeal rest is so essential that gastrotomy and tracheotomy have been performed to eliminate passive movement of the larynx in deglutition and respiration. In some cases the active immobilization of the affected side of the larynx is secured by severing or blocking the recurrent laryngeal nerve.

Phototherapy in the form of heliotherapy, Roentgenotherapy, quartz lamp, Cromayer's lamp, and radium are of help in building up the local resistance of the tissues.

The treatment of the most distressing symptom, dysphagia, may be briefly mentioned. This may be relieved by the application of trichloroacetic acid, but unfortunately its effect is only temporary, as it lasts only as long as the slough remains. The application of a 2 per cent solution of butyn, or 5 per cent cocain, anesthesin, orthoform, tannin-analgesin or sucking orthotroches, and the sipping of a 2 per cent solution of antipyrin have proved beneficial.

Other measures which are also helpful are Bier's passive hyperemia, produced by placing a

tourniquet on the neck for a few hours, alcohol injection or excision of the superior laryngeal nerve, and application of a warm 80 per cent solution of Chaulmoogra oil with one per cent menthol followed by careful massage.

The galvanocautery, now widely used, is of inestimable value, serving as a destructive agent for diseased tissue, as a stimulant for granulation tissue and as a means of puncturing areas exhibiting marked edema. But the greatest care in the selection of cases and in the use of this therapeutic agent is essential for the best results.

When dysphagia is due to involvement of the epiglottis, it may be amputated surgically or removed by galvanocautery. Pathology elsewhere in the larynx can also be destroyed by the above mentioned methods or by diathermy.

In extreme cases of dysphagia, where no other treatment brings relief, abatement of pain by morphin is the only choice.

Diet also plays a highly important rôle, particularly when dysphagia is present. Soft, bland, rather than liquid, foods are better tolerated. Individualization is essential, for one patient will often tolerate a food poorly taken by another. Having the patient eat in the sitting posture with the head bent forward, and swallowing air after each deglutition, will eliminate the choking spell.

Choice of climate represents a complicated problem of various physiotherapeutic factors such as temperature, barometric pressure, air currents, composition, etc. When properly combined they exert a powerful beneficial effect on tuberculosis of the larynx. The consensus of opinion seems to be that the best climate for laryngeal tuberculosis is the warm sea climate such as is found throughout most of southern California.

CHARLES RUBINSTEIN, Duarte.

Non-Specific Urethritis in the Female.—As long ago as 1906 it was known that a non-specific infection was a common occurrence in the female urethra. Taussig¹ demonstrated by culture that practically 50 per cent of female urethras were infected. Regardless of this early recognition of the condition and the frequency of its occurrence, there is very little to be found in textbooks concerning it, and a review of the literature reveals almost nothing on the subject. Indeed, the fact that it is so commonplace might be responsible for its being so lightly regarded.

Every physician is familiar with the female patient who complains of irritation in the region of the bladder outlet, of burning on urination and of urgency and some frequency which is worse during the day or when she is nervous or tired. These symptoms suggest chronic non-specific ure-

thritis, but it is extremely important not to make this diagnosis without a thorough examination, for the same symptoms may be seen when upper urinary pathology is present, and this must be excluded before making the final diagnosis.

The proximity of the female urethra to the vagina predisposes to its infection. There is always more or less trauma to the urethra during childbirth. Irritating vaginal discharges bathe the urethral meatus, causing an inflammation and lowering the resistance of the urethral mucosa.² Bacterial invasion from the vagina is then easily accomplished and gradually extends upward to the bladder neck and trigone.

Examination of the patient with chronic non-specific urethritis reveals either a slightly inflamed external urethral meatus, or more frequently fibrosis, which causes more or less contraction of the orifice. The voided urine sometimes shows a few pus cells and a few bacteria, but it is the rule for the catheterized specimen to be normal. Cysto-urethroscopic examination shows a subacute inflammation with some fibrosis and granulations throughout the urethra, about the posterior portion of the bladder neck, and on the lower part of the trigone. As the condition becomes more chronic, fibrosis predominates and there are seen small polypi at and just below the bladder neck. However, this picture does not preclude urethritis to the exclusion of everything else, for the infection in the urethra may extend downward from renal or bladder pathology, and this must be excluded.

The chronically infected female urethra is treated by first reducing the inflammation. The irritating vaginal discharge is corrected as far as possible. Balsams and alkalizers are given by mouth and the urethra may be irrigated with a mild antiseptic solution, followed by instillation of a solution such as silver iodid or gomenol in olive oil to allay the inflammation. It is also necessary to soften the fibrosis and to destroy the granulations and polypi. This may be done by massaging the urethra by passing a sound. In the more stubborn cases, cauterization of the granulations and polypi with silver nitrate, or their destruction with the fulgurating electrode through the cystoscope or endoscope may be necessary.

Summary.—The chronically infected female urethra is a common occurrence, but is frequently overlooked. The patient complains of symptoms of "cystitis" and has a practically normal urine. The infection is usually due to bacterial invasion from the vagina to a urethral mucosa of lowered resistance. Fibrosis, granulations and polypi are the usual cysto-urethroscopic findings. Urethral massage and dilatation with sounds and sometimes cauterization or fulguration are used to correct this condition after the cause of the inflammation has been eliminated.

ROGER W. BARNES, Los Angeles.

¹ Taussig, F. J. *Am. J. Obst. and Gynec.*, 54, 465, October 1906.

² Berlin, L. M. *Nonspecific Urethritis. Urol. and Cutan. Rev.*, 30, 463, August 1926.

STATE MEDICAL ASSOCIATIONS

CALIFORNIA MEDICAL ASSOCIATION*

LYELL C. KINNEY President
JUNIUS B. HARRIS.....President-Elect
EMMA W. POPE Secretary

COUNCIL MINUTES

Minutes of the One Hundred and Ninety-Third Meeting of the Council of the California Medical Association

Approved at the One Hundred and Ninety-Sixth Meeting of the Council of the California Medical Association, September 27, 1930

Held in Room 723, Hotel Del Monte, Del Monte, California, Thursday, May 1, 1930, at 9 a. m.

Present.—Doctors Kinney, Pallette, Arnold, Duffield, DeLappe, Phillips, Hamlin, Harris, Rogers, Hunter, Cushman, Kress, Kelly, Catton, Pope, and General Counsel Peart.

Absent.—Doctors Moseley, Coffey, and Ewer.

1. **Call to Order.**—The meeting was called to order by the chairman, Oliver D. Hamlin.

2. **Reorganization of the Council.**—The chairman stated that the first order of business would be the election of a chairman for the ensuing year, and asked that the president take the chair.

3. **Election of Chairman of the Council.**—Oliver D. Hamlin was nominated by Robert A. Peers, seconded by Rogers, as chairman of the Council for the ensuing year.

On motion of Hunter, duly seconded and carried, the secretary pro tem, Emma W. Pope, was instructed and did cast the ballot of all members of the Council for Dr. Oliver D. Hamlin, and the president announced the election of Oliver D. Hamlin as chairman of the Council for the ensuing year. Doctor Hamlin then took the chair.

4. **Election of Vice-Chairman of the Council.**—T. Henshaw Kelly was nominated by George H. Kress, seconded by Pallette, as vice-chairman of the Council for the ensuing year.

On motion of Duffield, duly seconded and unanimously carried, the secretary pro tem, Emma W. Pope, was instructed and did cast the ballot of all members of the Council for Dr. T. Henshaw Kelly, and the chairman announced the election of Doctor Kelly as vice-chairman of the Council for the ensuing year.

5. **Election of Secretary-Treasurer.**—Emma W. Pope was nominated by Lyell C. Kinney, seconded by Peers, as secretary-treasurer of the Association for the ensuing year at her present salary.

On motion of Pallette, duly seconded and unanimously carried, the chair was instructed and did cast the ballot of all members of the Council for Doctor Pope and announced the election of Emma W. Pope as secretary-treasurer for the ensuing year at her present salary.

6. **Minutes of the Council.**—Minutes of the 190th, 191st, and 192nd meetings of the Council were read and on motion duly made and seconded, the following resolution was adopted:

*For a complete list of general officers, of standing committees, of section officers, and of executive officers of the component county societies, see index references on the front cover, under Miscellaneous.

Resolved, That the minutes of the 190th, 191st, and 192nd meetings of the Council be approved.

7. **Election of Editor.**—George H. Kress was nominated by George Hunter, seconded by Henry S. Rogers, as editor of the JOURNAL for the ensuing year at his present salary.

On motion of Pallette, duly seconded and unanimously carried, the secretary was instructed and did cast the ballot of all members of the Council for Doctor Kress and the chair announced the election of George H. Kress as editor of the JOURNAL for the ensuing year at his present salary.

8. **Election of Associate Editor.**—Emma W. Pope was nominated by William Duffield, seconded by T. Henshaw Kelly, as associate editor of the JOURNAL for the ensuing year at her present salary.

On motion of Rogers, duly seconded and unanimously carried, the chair was instructed and did cast the ballot of all the members of the Council for Doctor Pope and announced the election of Emma W. Pope as associate editor of the JOURNAL for the ensuing year at her present salary.

9. **Appointment of General Counsel.**—On motion of Pallette, duly seconded and unanimously carried, the following resolution was adopted:

Resolved, That Hartley F. Peart be appointed general counsel of the California Medical Association for the ensuing year at his present retainer.

10. **Appointment of Associate General Counsel.**—On motion duly made and seconded and unanimously carried, the following resolution was adopted:

Resolved, That Hubert Morrow be appointed associate general counsel for the ensuing year at his present retainer.

11. **Election of Member of the Program Committee.** The secretary stated that the term of Robert V. Day had expired as a member of the Committee on Scientific Work.

F. M. Pottenger of Los Angeles was nominated by William Duffield as a member of the Committee on Scientific Work for a period of three years; such nomination was seconded by Robert A. Peers and unanimously carried.

On motion of Catton, duly seconded and unanimously carried, the secretary was instructed and did cast the ballot of all members of the Council for Dr. F. M. Pottenger as a member of the Committee on Scientific Work for a period of three years.

12. **Committee on Arrangements.**—On motion of Peers, seconded by Duffield and unanimously carried, the following resolution was adopted:

Resolved, That the San Francisco Bay region members of the Council appoint the members of the Arrangements Committee and advise the Council of such appointment.

The San Francisco members were instructed to secure information on accommodations for the next meeting at various hotels in San Francisco. It was stated that special consideration should be given to exhibit space.

It was felt that since the Olympic games would be held in Los Angeles during 1932 a committee should be appointed to make tentative arrangements for the meeting, which will probably be held in the south during 1932.

Action by the Council.—On motion of Harris, seconded by Kelly, and unanimously carried, the following resolution was adopted:

Resolved, That Doctors Duffield, Pallette, and Kinney be appointed a special committee to investi-

gate hotel accommodations in the south for the 1932 meeting and report at the fall meeting of the Council.

13. Lay Medical Service Corporation.—Telegram was presented from Harlan Shoemaker, secretary of the Los Angeles County Medical Association, stating that the Honorable Samuel R. Blake, judge of the Superior Court of the State of California, had rendered a decision that corporations cannot practice medicine.

The secretary was instructed to telegraph Doctor Shoemaker thanking him for the information.

14. Appointment of the Auditing Committee.—Discussion was had of the appointment of the members of the Auditing Committee. The chairman of the Council stated that the Auditing Committee would consist of Doctors Kelly (chairman), Coffey, and Catton. The appointment of the committee was approved by the Council.

15. Members of Standing Committees.—The chairman stated that the next order of business would be the appointment of members of standing committees.

George H. Kress was nominated as a member of the Standing Committee on Associated Societies and Technical Groups by Robert A. Peers, seconded by Pallette. There being no further nominations the chair announced the election of Doctor Kress as a member of the Standing Committee on Associated Societies and Technical Groups for a period of three years.

Robert A. Peers was nominated as a member of the Standing Committee on Extension Lectures by Joseph Catton, seconded by Edward Pallette and unanimously carried. There being no further nominations, the chair announced the election of Robert A. Peers as a member of the Standing Committee on Extension Lectures for a period of three years.

Henry S. Rogers was nominated as a member of the Standing Committee on Health and Public Instruction by Lyell C. Kinney, seconded by T. Henshaw Kelly and unanimously carried. There being no further nominations the chair announced the election of Henry S. Rogers as a member of the Standing Committee on Health and Public Instruction for a period of three years.

Gayle G. Moseley was nominated as a member of the Standing Committee on Hospitals, Dispensaries, and Clinics by T. Henshaw Kelly, seconded by William Duffield and unanimously carried. There being no further nominations, the chair announced the election of Doctor Moseley as a member of the Standing Committee on Hospitals, Dispensaries, and Clinics for a period of three years.

Mott H. Arnold was nominated as a member of the Standing Committee on Industrial Practice by William Duffield, seconded by Robert Peers and unanimously carried. There being no further nominations the chair announced the election of Doctor Arnold as a member of the Standing Committee on Industrial Practice for a period of three years.

Joseph King was nominated as a member of the Standing Committee on Medical Economics by Ruggles A. Cushman, seconded by Henry S. Rogers and unanimously carried. There being no further nominations the chair announced the election of Doctor King as a member of the Standing Committee on Medical Economics for a period of one year to fill the unexpired term of William T. McArthur.

Ruggles A. Cushman was nominated as a member of the Standing Committee on Medical Economics by William Duffield, seconded by T. Henshaw Kelly and unanimously carried. There being no further nominations the chair announced the election of Ruggles A. Cushman as a member of the Standing Committee on Medical Economics for a period of three years.

George G. Hunter was nominated by Edward M. Pallette as a member of the Standing Committee on Medical Education and Medical Institutions, seconded by Fred R. DeLappe and unanimously carried. There being no further nominations the chair announced the election of Dr. George Hunter as a member of the

Standing Committee on Medical Education and Medical Institutions for a term of three years.

Fred R. DeLappe was nominated as a member of the Standing Committee on Medical Defense by William Duffield, seconded by Lyell C. Kinney and unanimously carried. There being no further nominations the chair announced the election of Dr. Fred R. DeLappe as a member of the Standing Committee on Medical Defense for a term of three years.

Jesse W. Barnes was nominated as a member of the Standing Committee on Membership and Organization by T. Henshaw Kelly, seconded by Junius B. Harris and unanimously carried. There being no further nominations the chair announced the election of Dr. Jesse W. Barnes as a member of the Standing Committee on Membership and Organization for a term of three years.

Emmet Rixford was nominated as a member of the Standing Committee on History and Obituaries by Fred R. DeLappe, seconded by T. Henshaw Kelly. There being no further nominations the chair announced the election of Doctor Rixford as a member of the Standing Committee on History and Obituaries for a term of three years.

It was stated that Alfred C. Reed had resigned from the Committee on Publications on account of the stress of other activities. Morton R. Gibbons was nominated by William Duffield as a member of the Standing Committee on Publications; seconded by T. Henshaw Kelly and unanimously carried. There being no further nominations the chair announced the election of Morton R. Gibbons as a member of the Committee on Publications for a term of two years to fill the unexpired term of Alfred C. Reed.

Frederick Gundrum was nominated as a member of the Standing Committee on Publications by William Duffield; seconded by Fred R. DeLappe. There being no further nominations the chair announced the election of Frederick Gundrum as a member of the Standing Committee on Publications for a period of three years.

Joseph Catton was nominated as a member of the Standing Committee on Public Policy and Legislation by William Duffield; seconded by Peers. There being no further nominations the chair announced the election of Joseph Catton as a member of the Committee on Public Policy and Legislation for a period of three years.

16. Fall Council Meeting.—Discussion was had of the date of the fall meeting of the Council and on motion of Duffield, seconded by DeLappe and unanimously carried, it was

Resolved, That the fall meeting of the Council be held at Los Angeles on September 27, 1930.

17. Cost of Cuts in the Journal.—Discussion was had of the cost of illustrating articles published in the JOURNAL. It was pointed out that at the present time the Association paid \$10 toward illustrating any one article and that all in excess of that amount was paid by the author.

Action by the Council.—On motion of Kelly, seconded by Peers and unanimously carried, the following resolution was adopted:

Resolved, That the appropriation for cuts illustrating articles in the JOURNAL be left to the discretion of the editors.

18. Authors' Bureau.—Letter from Benjamin Katz recommending the establishment of an authors' bureau was presented.

It was the sense of the Council that the correspondence be referred to the Committee on Publications.

19. Druggists' Association.—Letter from the Pharmaceutical Association thanking the California Medical Association for its coöperation during the past year was read.

Action by the Council.—On motion of Catton, seconded by Hunter and unanimously carried, the following resolution was unanimously adopted:

Resolved, That a similar courteous telegram be transmitted to the Pharmaceutical Association thanking them for their coöperation.

20. Correspondence From Doctor Day.—Correspondence from Doctor Day which was held over from the 189th Council meeting was brought up for action. Doctor Hamlin explained that the amendment to the constitution should not have been submitted to the Council as Doctor Day had intended to present this to the House of Delegates and had done so on Monday evening. Doctor Pallette stated that Doctor Day did not desire further action on the resolution on financial statements.

Action by the Council.—On motion of Pallette, seconded by Rogers and unanimously carried, the following resolution was adopted:

Resolved, That inasmuch as Dr. Robert V. Day has stated that he does not desire action on the resolution regarding distribution of financial statements, it be filed.

21. Incorporation.—Mr. Peart called attention to the fact that Doctor Kelly and himself had made some slight changes in the proposed Articles of Incorporation. Mr. Peart then explained the changes to the Council. Discussion was had of the selection of directors for the corporation and it was decided that it would be advisable to have members of the Executive Committee act as the directors of the corporation. It was stated that the regular place of meeting should be the offices of the Association at San Francisco and that special meetings could be held wherever the Council meets. After discussion, on motion of Kelly, seconded by DeLappe and unanimously carried, the following resolution was unanimously adopted:

Resolved, That the proposed Articles of Incorporation, a draft of which was submitted to each member of the Council on January 21, 1930, as revised by the attorney and submitted to the Council at this meeting, providing for a nonprofit corporation under the laws of the State of California, without capital stock, and providing that the incorporators and members thereof shall be active members of this Association, who are councilors or constitutional officers thereof, with the name Trustees of the California Medical Association and with its principal office for the transaction of the business of the corporation located in the City and County of San Francisco, State of California, and providing for seven directors and naming as directors to serve for the first year and until their successors are elected, the seven members of the Executive Committee of this Association, viz.:

Lyell C. Kinney
J. B. Harris
O. D. Hamlin
Edward M. Pallette
George H. Kress
T. Henshaw Kelly
Emma W. Pope

and with the purposes and objects and the provisions regarding voting power and property rights and interests of the member of the corporation and the remaining provisions contained in said Articles of Incorporation this day submitted by the attorney, a true copy whereof is suffixed to these minutes, be and the same are hereby approved and adopted as the Articles of Incorporation for said corporation; and be it further

Resolved, That the Council hereby prescribes, fixes and determines the incorporators, name, purposes, objects, principal place of business, term and number of directors, and directors to serve for the first year and until their successors are elected and shall have accepted office; voting power, property rights and interests of the members and the remaining provisions contained in said Articles of Incorporation as in said copy of said Articles of Incorporation set forth; and be it further

Resolved, That each of the councilors and constitutional officers of this Association be requested to

forthwith sign his name to said articles and acknowledge such signature, and that the attorney of this Association be authorized and empowered to make proper filing thereof with the Secretary of State.

(Suffixed to the minutes of this meeting of the Council of the California Medical Association, at which the above resolution was adopted, is a copy of the Articles of Incorporation submitted as aforesaid and as filed in the office of the Secretary of State of California, May 8, 1930.)

Action by the Council.—On motion duly made, seconded and unanimously carried, the following resolution was adopted:

Resolved, That the secretary of this Association from time to time certify to the directors and officers of said corporation the names of the councilors and officers of this Association succeeding in office the present councilors and officers thereof, together with their respective terms of office.

Action by the Council.—On motion of Kelly, seconded by DeLappe and unanimously carried, the following resolution was unanimously adopted:

Resolved, That a special meeting of the Council of the California Medical Association be held at the offices of the Association, Room 2004, Four Fifty Sutter Building, 450 Sutter Street, San Francisco at 10 a. m. Saturday, May 17, 1930, to prescribe and approve by-laws for said corporation and to consider and act upon all necessary matters and things to complete the organization of said corporation.

22. Chevalier Jackson.—Doctor Kelly stated that Chevalier Jackson had been invited to speak at one of the general sessions of the present meeting but had been unable to come West at this time. Doctor Jackson expressed a keen desire to appear before the Association at some future time.

On motion of Kelly, seconded by Kinney and unanimously carried, the following resolution was adopted:

Resolved, That the Council invite Chevalier Jackson to address the Association at one of the general sessions at the 1931 annual meeting.

23. Editorials.—Doctor Kress presented two editorials. The Council approved for publication in the JOURNAL the editorial entitled "California Acquires Two Foundations for Cancer Research."

24. Adjournment.—There being no further business the meeting adjourned.

OLIVER D. HAMLIN, *Chairman.*
EMMA W. POPE, *Secretary.*

Copy of Articles of Incorporation of Trustees of the California Medical Association is here appended.

Articles of Incorporation of Trustees of the California Medical Association

(Adopted May 1, 1930. See Council Minutes of One Hundred and Ninety-Third Meeting)

Know All Men by These Presents:

That we, the undersigned, all of whom are residents of the State of California, and active members of the California Medical Association and councilors or other officers thereof according to the provisions of the constitution of said Association, propose to form a nonprofit coöperative corporation, having no capital stock, under the laws of the State of California, and particularly as embodied in Titles I and XXII of Part IV, Division First of the Civil Code of the State of California, and the provisions of acts amendatory thereof and supplemental thereto; and for the purpose of such incorporation we hereby unite in and adopt the following articles of incorporation, to wit:

First: That the name of this corporation is Trustees of the California Medical Association.

Second: That the purpose for which this corporation is formed is:

1. To promote the objects and aid in carrying out the purposes for which the California Medical Association was and is organized, namely, to promote the science and art of medicine, the protection of public health, and the betterment of the medical profession.

2. To receive, hold, own, enjoy, improve, use, convey in trust, mortgage, pledge, lien, hypothecate, lease, exchange, grant, sell, convey, or otherwise dispose of, moneys and other personal property and real property delivered, assigned, conveyed or transferred to it by or for the said California Medical Association.

3. To appoint such agents and officers as its business may require, and such appointed agents may be either persons or corporations; to admit duly qualified persons to membership in the corporation and to expel any member pursuant to the provisions of its by-laws; to forfeit the membership of any member for violation of any agreement between him and the corporation or his violation of its by-laws; to purchase, lease or otherwise acquire, hold, own and enjoy, to sell, lease, mortgage and otherwise encumber and dispose of any and all and every kind or kinds of real and personal property including stock in other corporations, also to carry on any and all operations necessary or convenient in connection with the transaction of any of its business; to borrow money, to mortgage or pledge any property real or personal owned or held by this corporation; to secure any contracts made by it or any bonds, debentures, promissory notes or other obligations by it issued or incurred or guaranteed.

4. And in aid and furtherance of the foregoing purposes:

(a) To acquire by operation of law, gift, devise, bequest, lease, purchase, or otherwise; to own, hold, improve, enjoy, use; to grant, bargain, sell and convey, exchange, or otherwise dispose of, mortgage, convey in trust, pledge, lien, hypothecate, lease, hire, and deal in, any and all kinds of property, both real and personal, lands, tenements, and hereditaments, and any and every interest therein, corporeal or incorporeal, personal property, furniture, fixtures, books, libraries, shares of stock of corporations, bonds, notes, securities, and any and all kinds of choses in action.

(b) To make, enter into, execute, deliver, receive, transfer and carry out contracts of every kind and character with any person, firm, association, club, or public or private or municipal corporation; to invest and reinvest surplus or other funds of this corporation in such securities as may be authorized by law for investment of the funds of savings banks in the State of California.

(c) To purchase or otherwise acquire, construct, erect, maintain, alter, repair, reconstruct, furnish, conduct, and carry on a home and meeting place and library for said California Medical Association, and to purchase or otherwise acquire, own, hold, improve, and use all kinds of property, real, personal, or mixed, necessary or proper to be used in connection therewith, and to hire, employ and contract with persons, firms, or corporations, necessary or proper to maintain, operate, conduct and carry on the same.

(d) To purchase or otherwise acquire, own, hold, manage, conduct, print, publish, circulate and sell journals, magazines, pamphlets, books and bulletins concerning or relating to the art and science of medicine, the protection of public health and the betterment of the medical profession, and in support and aid of the purposes of the corporation; to purchase or otherwise acquire, hire, lease, use, conduct or operate, manage, mortgage, convey in trust, sell or otherwise dispose of printing presses, apparatus, machinery tools, and devices for printing, engraving, lithographing, electrotyping, binding, and all equipment and appliances necessary or suitable to carry out the foregoing purposes.

(e) To do any and every act and thing necessary or incident to the exercise, accomplishment and fulfillment of the foregoing objects and purposes, and to exercise any and all other powers and rights permitted to corporations, organized under the above mentioned provisions of the laws of California. The enumeration of particular powers herein shall not be deemed to exclude by inference such legal powers as would be implied if no such expressed enumeration had been made.

Third: That the county in the State of California where the principal office of this corporation for the transaction of the business of the corporation is to be located is the City and County of San Francisco.

Fourth: That the number of directors of this corporation is seven (7), and that the names and residences of the directors who have been selected, and appointed, for the first year and until their successors shall have been elected and shall have accepted office are as follows:

Lyell C. Kinney, La Mesa, San Diego County, Cal.

J. B. Harris, Arcade Park, Sacramento County, Cal.

O. D. Hamlin, Oakland, Alameda County, Cal.

Edward M. Pallette, Los Angeles, Los Angeles County, Cal.

George H. Kress, Santa Monica, Los Angeles County, Cal.

Emma W. Pope, Berkeley, Alameda County, Cal.

T. Henshaw, Kelly, San Francisco, Cal.

Fifth: That the voting power and property rights and interest of each member of the corporation shall be equal to that of every other member of the corporation. Each member of the corporation shall be entitled to one vote upon all propositions submitted to, and to one vote for each director to be elected by, the members. Cumulative voting is expressly prohibited. The corporation shall have power to admit new members, who are duly qualified as hereinafter provided, who shall be entitled to vote and to share in the property of the corporation with the old members but without any beneficial interest therein in accordance with the general rule in these articles provided.

Sixth: That this corporation shall have no capital stock but shall be composed of members, each of whom shall be an active member in good standing and a councilor or other officer according to the provisions of the constitution, as now existing or as it may hereafter be amended, of the California Medical Association, a voluntary association, originally formed March 12, 1856, to promote the science and art of medicine, the protection of public health, and the betterment of the medical profession, and now having its offices and headquarters at Room 2004, Four Fifty Sutter Building, 450 Sutter Street, San Francisco, California. Every person who is an active member of the California Medical Association in good standing, while he is and remains a councilor or other such officer of said Association, shall be entitled to become and shall be, without other or any action or proceeding (and in accordance with this general rule), a member of this corporation upon the issuance to, and acceptance by, him of a certificate of membership and giving his assent in writing to the articles of incorporation and the by-laws of this corporation, and his compliance with, all the provisions thereof relating to admission to membership.

Seventh: (a) A roll of members shall be kept and certificates of membership shall be issued to each and every member. Issuance to and acceptance by a member of a certificate of membership of this corporation shall be conclusive evidence of the consent of the member to become a member of this corporation, and of his agreement to comply with and be governed by all the provisions of these articles of incorporation and the by-laws of this corporation.

(b) Neither membership in this corporation, nor any certificate evidencing the same, nor the interest of any member in this corporation, or any of the assets thereof, shall (a) be subject to execution, or become or be, an asset of the estate of any deceased member, or of any member who may become insolvent or bankrupt, (b) descend to or vest in the heirs, legatees or devisees of any member, or (c) be transferable or assignable in any form, either by the voluntary or involuntary act of any member, or by operation of law. In the event of the death, insolvency or bankruptcy of any member or of any such attempted transfer or assignment of membership or of any certificate evidencing the same, or of any interest of any member in this corporation, or any of the assets

thereof, whether by the voluntary act of the member or otherwise, such membership, certificate and all interest of any such member in this corporation, and all assets thereof, shall be immediately canceled, revoked and terminated.

Eighth: This corporation is not organized, and its business shall not be conducted or carried on for profit to itself, or for the profit of its members. All beneficial interest of each member in this corporation, and in and to all the assets thereof, shall be held by him for the use and benefit of the California Medical Association.

Ninth: In the event of the dissolution of this corporation all of its assets and property after payment and satisfaction and discharge of all claims and demands against, and liabilities of, the corporation, shall be paid over, distributed, conveyed and transferred to the nominee or nominees of said California Medical Association, acting by and through the Council, viz., the board of councilors thereof.

In witness whereof, we have hereunto set our hands and seals this first day of May, 1930.

O. D. HAMLIN (Seal)
LYELL C. KINNEY (Seal)
J. B. HARRIS (Seal)
T. HENSHAW KELLY (Seal)
EMMA W. POPE (Seal)
GEORGE H. KRESS (Seal)
MOTT H. ARNOLD (Seal)
WILLIAM DUFFIELD (Seal)
FRED R. DELAPPE (Seal)
ALFRED L. PHILLIPS (Seal)
ROBERT A. PEERS (Seal)
HENRY S. ROGERS (Seal)
JOSEPH CATTON (Seal)
EDWARD M. PALLETTE (Seal)
GEO. G. HUNTER (Seal)
R. A. CUSHMAN (Seal)
JOHN H. GRAVES (Seal)
EDW. N. EWER (Seal)
WALTER B. COFFEY (Seal)
GAYLE G. MOSELEY (Seal)

State of California
County of Monterey—ss.

On this first day of May, in the year one thousand nine hundred and thirty, before me, Frank C. Jakobs, a notary public in and for the County of Monterey, State of California, residing therein, duly commissioned and sworn, personally appeared

O. D. Hamlin Alfred L. Phillips
Lyell C. Kinney Robert A. Peers
J. B. Harris Henry S. Rogers
T. Henshaw Kelly Joseph Catton
Emma W. Pope Edward M. Pallette
George H. Kress George G. Hunter
Mott H. Arnold R. A. Cushman
William Duffield John H. Graves
Fred R. DeLappe Edward N. Ewer

known to me to be the persons described in, whose names are subscribed to and who executed the within and annexed instrument, and acknowledged to me that they executed the same.

In Witness Whereof, I have hereunto set my hand and affixed my official seal, at my office in the county of Monterey, State of California, the day and year in this certificate first above written.

(Seal) FRANK C. JAKOBS,
Notary Public in and for the County of Monterey,
State of California.
My commission expires February 17, 1933.

State of California
City and County of San Francisco—ss.

On this second day of May, in the year one thousand nine hundred and thirty, before me, Marion Curtis, a notary public in and for the City and County of San Francisco, personally appeared Walter B. Coffey, known to me to be the same person whose

name is subscribed to the within instrument, and he duly acknowledged to me that he executed the same.

In Witness Whereof, I have hereunto set my hand and affixed my official seal, at my office in the City and County of San Francisco, the day and year in this certificate first above written.

(Seal) MARION CURTIS,
Notary Public in and for the City and County of San
Francisco, State of California.
My commission expires June 27, 1933.

State of California
County of San Bernardino—ss.

On this fifth day of May, in the year nineteen hundred and thirty, A. D., before me, D. M. Hayes, a notary public in and for said County of San Bernardino, State of California, residing therein, duly commissioned and sworn, personally appeared Gayle G. Moseley, personally known to me to be the person whose name is subscribed to the within instrument, and acknowledged to me that he executed the same.

In Witness Whereof, I have hereunto set my hand and affixed my official seal in said county the day and year in this certificate first above written.

(Seal) D. M. HAYES,
Notary Public in and for the County of San Bernar-
dino, State of California.
My commission expires March 22, 1931.

Minutes of the One Hundred and Ninety-Fourth
Meeting of the Council of the California
Medical Association

*Approved at the One Hundred and Ninety-Sixth
Meeting of the Council of the California
Medical Association, September 27, 1930*

Held in the offices of the Association, Room 2004, Four Fifty Sutter Building, 450 Sutter Street, San Francisco, California, Saturday, May 17, 1930, at 11 a. m.

Present.—Doctors Kinney, Harris, Pallette, Duffield, DeLappe, Hamlin, Rogers, Hunter, Cushman, Kress, Catton, Kelly, Ewer, and Pope; and Vice-Speaker Graves and General Counsel Peart.

Absent.—Doctors Arnold, Moseley, Phillips, Coffey, and Peers.

1. **Call to Order.**—The meeting was called to order by the chairman, Oliver D. Hamlin.

2. **Incorporation.**—Letter from Doctor Kress requesting information on the present status of the California Medical Association and the Medical Society of the State of California in regard to incorporation under the laws of the State of California was read.

Action by the Council.—On motion of Duffield, seconded by Kelly, the following resolution was unanimously adopted:

Resolved, That the correspondence on incorporation be turned over to Mr. Peart with the request that he submit a report on the incorporation of the California Medical Association and the Medical Society of the State of California at the next meeting of the Council.

At the request of the chairman, Mr. Peart stated to the Council that in accordance with the resolution of the House of Delegates duly adopted at the meeting thereof held at Coronado in 1929, it was necessary for the Council to prescribe, fix and approve the by-laws of the Trustees of the California Medical Association; that the Articles of Incorporation duly executed with certificate of approval of name by the superintendent of banks attached thereto, had been filed in the office of the Secretary of State of California, May 8, 1930, and that a copy thereof duly certified by the Secretary of State had been filed in the office of the county clerk of the City and County of San Francisco, May 12, 1930. Mr. Peart then ex-

plained that the next step necessary was the approval by the Council of the code of by-laws submitted in draft form some weeks ago to each member of the Council by mail. Mr. Peart then read the by-laws chapter by chapter and section by section, discussing and explaining the more important provisions contained therein. The question of liability of members was raised by Dr. George G. Hunter and Mr. Peart explained that this liability existed, as in stock corporations, in the proportion which one bears to the total number of members. Mr. Peart directed the attention of the Council to the fact that at previous meetings at which this question had been brought up, he had pointed out that by the use of the word "Limited" or the abbreviation "Ltd." in the name of the corporation members' liability was avoided and that the Council, in view of the intended use of the corporation, did not deem the matter material and did not wish to use the word "Limited" or its abbreviation in the name. Doctor Kress stated that it would be advisable to have copies of the Articles of Incorporation and by-Laws prepared and sent to all members of the Council for study. It was the sense of the Council that this should be done. The general counsel then read the proposed certificate of membership with endorsements and stub.

Action by the Council.—On motion of George H. Kress, seconded by Joseph Catton and unanimously carried, the following resolution was adopted:

Resolved, That the proposed by-laws of Trustees of the California Medical Association, a draft of which was heretofore submitted to each member of the Council as revised by the attorney and submitted to the Council at this meeting and the proposed certificate of membership of said corporation with endorsement and stub this day submitted to this meeting, true copies whereof are suffixed to these minutes, be and the same are hereby approved and adopted as the by-laws and certificate of membership for said corporation; and be it further

Resolved, That the Council hereby prescribes, fixes and determines the by-laws and the certificate of membership of said corporation as in said copy of said by-laws and said copy of said certificate set forth.

(Suffixed to the minutes of this meeting of the Council of the California Medical Association at which the foregoing resolution was adopted, is a copy of the by-laws of said corporation submitted as aforesaid and as adopted by the members and directors of said corporation and a copy of certificate of membership submitted as aforesaid, and as adopted by the directors of said corporation.)

The question of a proper seal was discussed and on motion of Kress, seconded by Catton and unanimously carried, the following resolution was adopted:

Resolved, That the chairman of the Executive Committee be deputized to prepare a seal for the Trustees of the California Medical Association; such seal to include the figures of a grizzly bear and a caduceus.

Mr. Peart stated that the cost of incorporation books, etc., would be \$50 or \$60.

Action by the Council.—On motion of Duffield, seconded by Kelly and unanimously carried, the following resolution was adopted:

Resolved, That the costs incurred in the matter of incorporation be paid by the secretary-treasurer out of the funds of the California Medical Association.

Action by the Council.—On motion of Kress, seconded by Hunter, the following resolution was adopted:

Resolved, That a recess of the Council be declared.

3. **Adjournment.**—After the recess, there being no further business to come before the Council the meeting adjourned.

OLIVER D. HAMLIN, *Chairman.*
EMMA W. POPE, *Secretary.*

(Copy of certificate of membership and by-laws of Trustees of the California Medical Association are here appended.)

Certificate No. ____.

CERTIFICATE OF MEMBERSHIP IN TRUSTEES OF THE CALIFORNIA MEDICAL ASSOCIATION

(A Nonprofit Coöperative Corporation Having No Capital Stock, Incorporated Under the Laws of the State of California, May 8, 1930)

This is to certify that _____, an active member of the California Medical Association and a councilor or an officer thereof according to the provisions of its constitution, is a member of Trustees of the California Medical Association, a coöperative corporation having no capital stock, whose business is not conducted or carried on for profit to itself or for the profit of its members.

This certificate and the membership in said corporation evidenced hereby and the interest of said member in said corporation or any of the assets thereof shall not (a) be subject to execution or become or be an asset of the estate of the member if deceased or insolvent or bankrupt, (b) descend to or vest in the heirs, legatees, or devisees of the member, or (c) be transferable or assignable in any form either by the voluntary or involuntary act of the member, or by operation of law. If the member ceases to be an active member of the California Medical Association and a councilor or an officer according to the provisions of the constitution thereof, or in the event of the death, insolvency, or bankruptcy of the member or of any attempted transfer or assignment of this certificate or the membership evidenced thereby or of any interest of the member in said corporation or any of the assets thereof, whether by the voluntary act of the member or otherwise, this certificate, the membership evidenced thereby, and all interest of the member in said corporation and all assets thereof shall thereupon be immediately canceled, revoked, and terminated.

The interest of the member in the aforesaid corporation is held by him in trust for the use and benefit of said California Medical Association, and by the acceptance of this certificate the member hereby expressly agrees and consents to be governed and bound by all of the provisions of the Articles of Incorporation and the By-Laws of this corporation, and all amendments to either thereof.

Issued and dated _____, 19____.

TRUSTEES OF THE CALIFORNIA MEDICAL ASSOCIATION,

By _____ President.

And _____ Secretary.

✓ ✓ ✓

The undersigned hereby accepts the above certificate of membership in Trustees of the California Medical Association and hereby expressly assents to and agrees and consents to be governed and bound by all of the terms, conditions, and provisions of said certificate, the Articles of Incorporation and By-Laws of said corporation, and all amendments to either thereof.

Dated _____, 19____.

✓ ✓ ✓

(STUB)

Certificate No. ____.

Dated _____, 19____.

Issued to _____.

The undersigned hereby declares that his interest in Trustees of the California Medical Association, a nonprofit coöperative corporation having no capital stock, incorporated under the laws of the State of California, May 8, 1930, and any interest he may have by reason of such membership in the property of said corporation is held by him in trust for the use and benefit of the California Medical Association.

Certificate No. ____ Canceled this ____ day of _____, 19____.

✓ ✓ ✓

(BACK)

The within certificate of membership issued to and accepted by the undersigned, as shown on the face thereof, is hereby endorsed and delivered by the undersigned to the secretary of Trustees of the California Medical Association.

Dated _____, 19____.

Member.

✓ ✓ ✓

CERTIFICATE OF MEMBERSHIP IN TRUSTEES OF THE CALIFORNIA MEDICAL ASSOCIATION

issued to

The within certificate is hereby canceled this ____ day of _____, 19____.

Secretary of Trustees of the California Medical Association.

By-Laws of the Trustees of the California Medical Association

(Adopted on May 17, 1930. See Council Minutes of One Hundred and Ninety-Fourth Meeting)

CHAPTER I

TRUSTEES OF THE CALIFORNIA MEDICAL ASSOCIATION, A NONPROFIT CORPORATION

Section 1. This corporation shall conduct and carry on its business without profit to itself or its members; is not organized and its business shall not be conducted or carried on for profit to itself or for the profit of its members.

Section 2. All of the income, revenue, and earnings from and/or the principal and corpus of the assets of the corporation unless otherwise limited, shall be held, used, managed, devoted, expended, and applied in the discretion and judgment of the board of directors to carry out the objects and purposes of the corporation and without profit, directly or indirectly, to any member of the corporation as such; and all beneficial interest of each member in this corporation and in and to all the assets thereof shall be held by him for the use and benefit of the California Medical Association; provided, however, that the officers, agents, and representatives of the corporation who may be selected and appointed whether from the members and directors or otherwise, shall be paid such reasonable salaries and compensation for work done or services performed for the corporation as the board of directors shall from time to time determine.

Section 3. No member of the corporation shall by reason of membership therein be or become entitled at any time to receive any assets, property, income, or earnings from the corporation or to profit therefrom in any manner save and except that a member may be selected or appointed as an officer, agent, or representative of the corporation and be paid such reasonable salary or compensation for work done or services performed as herein in Section 2 provided.

Section 4. In the event of the dissolution of this corporation all of its assets and property after payment and satisfaction and discharge of all claims and demands against, and liabilities of, the corporation, shall be paid over, distributed, conveyed and transferred to said California Medical Association (acting by and through the Council, viz., the board of councilors thereof), its nominee or nominees.

CHAPTER II

QUALIFICATIONS AND RIGHTS OF MEMBERS

Section 1. This corporation shall have no capital stock, but shall be composed of members. No person shall be qualified to be a member of this corporation until he shall first have become and be an active member of the California Medical Association, a voluntary association originally formed March 12, 1856, to promote and develop the art and science of medicine, the protection of public health and the betterment of the medical profession, and now having its offices and headquarters at Room 2004 Four Fifty Sutter Building, 450 Sutter Street, San Francisco, California, and a councilor or other officer according to the provisions of the constitution as now existing or as it may hereafter be amended, of said association. Every person upon becoming an active member of said California Medical Association and a councilor or other officer according to the provisions of the constitution of said association as now existing or as hereafter amended, or both such councilor and officer, shall be entitled to become and shall be without other or any action or proceeding (and in accordance with this general rule) a member of this corporation, upon the issuance to and acceptance by him of a certificate of membership and giving his assent in writing to all the provisions of the Articles of Incorporation and the by-laws of this corporation and all the terms and conditions in such certificate of membership contained, and shall endorse said certificate in blank and deliver the same to the secretary of this corporation. Prior to the enrollment of his name as a member, each member shall make and execute a written declaration that his interest in this corporation,

Trustees of the California Medical Association, and any interest he may have by reason of such membership in the property of the corporation, is held by him in trust for the use and benefit of said California Medical Association. No member shall be required to pay any membership fee.

Section 2. Whenever any member of this corporation shall for any reason cease to be an active member and a councilor or such officer of said California Medical Association, he shall *ipso facto* and without notice or hearing cease to be a member of this corporation and it shall be the duty of the secretary hereof to cancel his certificate of membership and all of his interest in and to any of the funds and property of this corporation shall thereupon cease and determine, and no person ceasing to be a member of this corporation from whatever cause shall be entitled to any recompense or payment to him of any kind.

Section 3. The voting power and property rights and interest of each member of this corporation shall be equal to every other member of the corporation. Each member of the corporation shall be entitled to one vote on all propositions submitted to the members. At all of the members' meetings each member present in person or by duly approved proxy shall be entitled to one vote on each resolution, motion, matter, proposition or question acted upon and to one vote for each director to be elected at any of said meetings. Cumulative voting is expressly prohibited.

Section 4. Neither membership in this corporation, nor any certificate evidencing the same, nor the interest of any member in this corporation, or any of the assets thereof, shall (a) be subject to execution, or become or be, an asset of the estate of any deceased member, or of any member who may become insolvent or bankrupt, (b) descend to or vest in the heirs, legatees or devisees of any member, or (c) be transferable or assignable in any form, either by the voluntary or involuntary act of any member, or by operation of law. In the event of the death, insolvency or bankruptcy of any member or of any such attempted transfer or assignment of membership or of any certificate evidencing the same, or of any interest of any member in this corporation, or any of the assets thereof, whether by the voluntary act of the member or otherwise, such membership, certificate and all interest of any such member in this corporation, and all assets thereof, shall be immediately canceled, revoked and terminated.

Section 5. The number of members of this corporation shall be the aggregate sum of the number of councilors and officers of the California Medical Association, as provided by its constitution as now existing or as it may hereafter be amended, who qualify for membership herein.

Section 6. A roll of members shall be kept by the secretary, together with a list of the names of the persons who are councilors or officers, according to the provisions of the constitution of the California Medical Association as now existing or as the same may be hereafter amended, together with their respective terms of office.

CHAPTER III

CERTIFICATES OF MEMBERSHIP

Section 1. Certificates of membership shall be of such form and device as the board of directors may prescribe, and as may be provided by any legally constituted commission or officer thereof, and each certificate shall express on its face its number, date of issuance, and the person to whom it is issued. Certificates of membership shall be nontransferable. Issuance to and acceptance by a member of such certificate of membership shall be conclusive evidence of the consent of the member to become a member of this corporation, and of his agreement to comply with and be governed by all the provisions of the Articles of Incorporation and by-laws of this corporation. Certificates of membership in the corporation shall be issued to persons eligible therefor, and entitled thereto, in accordance with the Articles of Incorporation and these by-laws, and as may be provided by any legally constituted commission or officer

thereof. Certificates of membership in this corporation shall be canceled by the secretary whenever a member ceases to be eligible as such or whenever the membership of the member terminates in accordance with the provisions of the Articles of Incorporation and these by-laws. All certificates of membership shall be signed by the president or either vice-president, and by the secretary or the assistant secretary. The seal of the corporation shall be affixed thereto.

CHAPTER IV MEETINGS OF MEMBERS

Section 1. The first annual meeting of the members of this corporation shall be held at the office of the corporation on the fourth Saturday of May, 1931, at ten o'clock a. m., or if that day be a legal holiday, then at the same time and place on the next Saturday not a legal holiday. Thereafter, the annual meeting of the members of this corporation shall be held at the office of the corporation on the fourth Saturday of May of each year at ten o'clock a. m., or if that day be a legal holiday, then at the same time and place on the next Saturday not a legal holiday. Notice of all regular annual meetings is dispensed with.

Section 2. Special meetings of the members may be called at any time by the president or by resolution of the board of directors or by any nine members of the corporation, and all such calls shall be in writing and state the purpose of the meeting and be filed with the secretary. Upon the passage of such resolution or the filing of such call of meeting, the secretary shall forthwith fix a day and hour for such meeting, allowing necessary time for notice thereof, and shall forthwith give notice of the place, day and hour, and the purposes of the meeting and the person or persons by whom called by depositing in the United States mail at San Francisco, California, with postage fully prepaid, at least five days before the time appointed for such meeting, a written notice addressed to each member at his address as it appears on the books of the corporation; or if a member's address does not appear on the books of the corporation and is known to the secretary, to such known address, or if a member's address does not appear on the books of the corporation and is not known to the secretary, it may be addressed to him at San Francisco, California; in lieu of mailing, such notice may be personally delivered to any member at least five days before the day appointed for such meeting. No other notice of special meetings of members need be given.

Section 3. An entry of the service of notice of a special meeting of the members given in the manner above provided shall be made in the minutes of the proceedings of the members, and such entry, if read and approved at a subsequent meeting of the members, shall be conclusive on the question of such service.

Section 4. Any regular or special meeting of the members may adjourn from day to day or from time to time without notice, until its business is completed.

Section 5. Each member may register his address with the corporation by written notice thereof delivered by him to the secretary.

Section 6. A majority of the members of the corporation shall constitute a quorum, and if a quorum is present at any meeting it shall be competent to transact all business, except as otherwise herein, or by law provided. If a quorum is not present the members may adjourn the meeting from time to time until a quorum is present.

Section 7. When all the members of the corporation are present at any meeting, or when the members not represented thereat give their written consent to the holding thereof at the time and place the meeting is held, and such written consent is made a part of the records of such meeting, the proceedings had at such meeting are valid, irrespective of the manner in which the meeting is called or the place where it is held.

Section 8. Each member shall be entitled to vote by proxy appointed by instrument in writing sub-

scribed by such member delivered to the secretary prior to the date of meeting. All proxies shall be submitted to the secretary of the corporation for examination. The certificate of the secretary as to the execution and regularity of such power of attorney or proxy and as to the membership of the member shall be received as *prima facie* evidence of the right of the member to vote and of the authenticity and sufficiency of such proxy.

Section 9. At each annual meeting of the members, directors for the ensuing year shall be elected by ballot to serve for one year and until their successors are elected and accept office.

Section 10. All meetings of the members (other than as provided in Section 7 hereof) must be held at the office of the corporation.

CHAPTER V CORPORATE POWERS

Section 1. The corporate powers of this corporation shall be vested in a board of seven directors who shall be members of this corporation, and four directors shall constitute a quorum for the transaction of business.

CHAPTER VI DIRECTORS—TERM OF OFFICE—VACANCIES—POWERS AND DUTIES

Section 1. The directors shall hold office for one year and until their successors are elected or appointed or until removed as provided in these by-laws. Their term of office shall begin immediately after election and they shall serve without compensation.

Section 2. Any director may be removed from office as such by the affirmative vote of four-fifths of the members at any regular or special meeting of the members on written notice setting forth the reasons and grounds therefor mailed to such director at his last known address at least ten days prior to the date of such meeting, and after a hearing with full opportunity to such director to be heard, and another member elected to fill such vacancy for the unexpired term. Any director shall, upon ceasing to be a member of this corporation, immediately cease to be a director of this corporation, and the president, or any vice-president or the secretary shall thereupon declare his office vacant.

Section 3. The board of directors shall have power to call special meetings of the members whenever they deem it necessary; to appoint and remove at pleasure all agents and employees of the corporation and prescribe such duties for each of them as are not inconsistent with law or these by-laws, and fix their compensation and require from them security for faithful service; to conduct, manage and control the affairs and business of the corporation; and generally to exercise all the powers and carry out all the purposes of this corporation as prescribed by law, the Articles of Incorporation and these by-laws.

Section 4. The compensation of those executive officers who may receive compensation, as in these by-laws provided, shall be fixed by the board of directors.

Section 5. It shall be the duty of the directors in addition to the other duties imposed upon them by law and these by-laws, to cause to be kept a complete record of all their minutes and acts and of the proceedings of the members and to present a full statement at the annual meeting of the members showing in detail the assets and liabilities of the corporation and generally the condition of its affairs—a copy of such statement shall be rendered at least once a year to the House of Delegates and the Council of the California Medical Association and such statement shall be made to the House of Delegates and the Council of said California Medical Association whenever requested by either thereof; to supervise all officers, agents and employees, and see that their duties are properly performed; to cause to be issued to each member of this corporation a certificate of membership in this corporation; to manage, handle, conduct and maintain all property of the California Medical Association, conveyed, transferred and de-

livered to it; to invest and reinvest all money, funds and securities conveyed, transferred or delivered to this corporation by the California Medical Association or otherwise acquired by this corporation, and to create and conserve a reserve fund to be used for promoting the purposes of said California Medical Association.

Section 6. Any vacancy in the board of directors through death, resignation, disqualification, or other cause shall be filled by an appointee of the board who shall hold office until the next annual meeting of the members unless his successor be duly elected by the members at a members' meeting called therefor and held prior thereto. It is the duty of the directors to fill all vacancies of the board with all convenient dispatch as soon as a vacancy occurs.

Section 7. No resignation of a director shall take effect so long as such resignation would reduce the number of directors to a number less than that necessary to constitute a quorum of the board.

CHAPTER VII DIRECTORS' MEETINGS

Section 1. Regular meetings of the directors shall be held immediately after the adjournment of the annual meeting of the members at whatever hour such adjournment occurs and on the first Saturday in December, and on the third Saturday in January in each year, at the hour of ten o'clock a. m. and notice of all regular meetings of the board is hereby dispensed with. If any such Saturday shall be a legal holiday, then said meeting shall be held at the same hour on the next succeeding Saturday not a legal holiday.

Section 2. Special meetings of the directors may be called at any time by the president or by three or more of the directors. Such call shall be in writing, signed by the person or persons making the call, and shall state the purposes of the meeting and shall be filed with the secretary. The secretary shall forthwith fix the day and hour for such meeting, allowing necessary time to give notice thereof. Written notice of such meeting stating the place, day and hour, the purposes of the meeting, and by whom called, shall be given by the secretary at least forty-eight hours prior to the time set for such meeting by leaving same at the registered address of each director, or such notice may be sent to each director by enclosing the same in a sealed envelope and depositing it forty-eight hours before the time fixed for such meeting, in the United States mail at San Francisco, California, postage fully prepaid, addressed to him at the place where he usually receives mail, if such place be known to the secretary; or, if such place be not so known to the secretary, then such notice shall be so mailed to him at San Francisco, California. No other notice of special meeting of the directors need be given. An entry of the service of notice of a special meeting of the directors given in the manner above provided, shall be made in the minutes of the proceedings of the directors, and such entry, if read and approved at a subsequent meeting of this board, shall be conclusive on the question of such service.

Section 3. Each director may register with the secretary the street and number of the place where he desires all notices to be sent to him which are sent by mail.

Section 4. Meetings of the board of directors may be held at any place within the State of California fixed by a quorum thereof by resolution at any regular or special meeting of the board; provided, however, that unless such meeting is held in compliance with the provisions of Section 5 hereof, notice of the time and place of any meeting of the board held at any place other than at the office of the corporation shall be given as provided in Section 2 hereof.

Section 5. When all the directors of the corporation are present at any directors' meeting, however called or noticed, and sign a written consent thereto, on the record of such meeting, or if the majority of the directors are present, and if those not present sign in writing a waiver of notice of such meeting,

whether prior to or after the holding of such meeting, which waiver shall be filed with the secretary of the corporation, the transactions of such meeting are as valid as if had at a meeting regularly called and noticed.

Section 6. At meetings of the board of directors, business shall be transacted in such order as the board may determine from time to time by resolution. All meetings of the board of directors (other than as provided in Sections 4 and 5 hereof) shall be held at the office of the corporation.

Section 7. The directors shall not be entitled to receive any compensation directly or indirectly as directors of the corporation unless employed or appointed by the corporation to perform work or render services considered and deemed to be of such nature and extent by the board of directors as to entitle them to compensation therefor.

CHAPTER VIII OFFICERS

Section 1. At the organization meeting of the directors and thereafter at each regular meeting of the board of directors held immediately after adjournment of the annual meeting of the members at which the election of directors is held, the directors shall elect a president, first vice-president, second vice-president, secretary, assistant secretary, treasurer, and assistant treasurer, who shall hold office for one year and until their successors are elected or appointed unless sooner removed. The secretary, the assistant secretary and the assistant treasurer, may, but need not be, members of the board of directors. All the remaining officers must be chosen from the directors. All of the officers except the secretary and/or assistant secretary shall serve without compensation. The directors may also appoint such other officers, representatives, and agents as they may deem proper. One director may be elected or appointed to hold one or more offices except those of president and secretary. The directors may at any time at their pleasure with or without assigning any cause therefor, remove any officer, representative, agent, or employee elected or appointed by them.

Section 2. If the office of any officer becomes vacant by reason of death, resignation, removal, or otherwise, the board of directors shall elect a successor, who shall hold office for the unexpired term.

CHAPTER IX PRESIDENT

Section 1. The president shall preside over all the meetings of the members and directors and shall have the casting vote; he shall sign as president all certificates of membership in the corporation and all contracts, documents, deeds, mortgages, instruments and agreements in writing which have been first approved by the board of directors and shall sign all checks or drafts upon the funds of the corporation; he shall call special meetings of the directors whenever he deems it necessary and shall have, subject to the advice and approval of the board of directors, direction of the affairs of the corporation and generally shall discharge such other duties as may be required of him by the by-laws.

Section 2. In the absence or inability to act of the president, the first vice-president shall be and is vested with all of the powers and shall perform all of the duties of the president. In the event of the absence or inability to act of both the president and first vice-president, then the second vice-president shall be and is vested with all of the powers and shall perform all of the duties of the president. In such acts and in the execution of writings by either of such vice-presidents, it shall not be necessary to recite the absence or inability of any preceding officer to act.

CHAPTER X SECRETARY

Section 1. The secretary shall attend all meetings of the members and of the directors and record all votes and minutes of their proceedings in a book or books kept for that purpose; he shall keep the corpo-

rate seal and the book of certificates of membership, fill up and countersign all certificates issued, and he shall affix the corporate seal to all papers requiring a seal. He shall keep a roll of members in a book kept for that purpose. He shall serve all notices required either by law or the by-laws of the corporation. He shall countersign all contracts, documents, deeds, mortgages, instruments and agreements in writing which have been first approved by the board of directors and shall sign all checks or drafts upon the funds of the corporation; he shall cause to be kept and supervise and control the keeping of the accounts and books of the corporation, and he shall generally perform such other duties pertaining to his office as may be required of him by these by-laws or the board of directors.

Section 2. In the event of the absence or inability to act of the secretary, the assistant secretary shall act in his place and stead and shall be and is hereby vested with the powers and shall perform all the duties of the secretary and in such event it shall not be necessary to recite the absence or inability of the secretary to act.

Section 3. In case of the absence or disability of both the secretary and assistant secretary or their refusal or neglect to act, notices may be given and served by the president, or by any vice-president, or by any person thereunto authorized by the president.

CHAPTER XI TREASURER

Section 1. The treasurer shall safely keep all moneys and funds of the corporation which may come into his hands from time to time and shall approve in writing on the face of any check or draft of the corporation the expenditure of all funds of the corporation. The treasurer shall generally perform such other duties pertaining to his office as may be required of him by these by-laws or the board of directors. In the event of the absence or inability to act of the treasurer, the assistant treasurer shall act in his place and stead and shall be and is hereby vested with the powers and shall perform all of the duties of the treasurer; and in such event it shall not be necessary to recite the absence or inability of the treasurer to act.

CHAPTER XII DEPOSITORIES

Section 1. The board of directors shall from time to time designate one or more banks in San Francisco or elsewhere in the State of California, to act as depository or depositories of this corporation, with which the funds of this corporation and its securities shall be deposited; such funds shall be withdrawn from such depository or depositories only by check or draft of the corporation signed by the president or the first vice-president or the second vice-president and countersigned by the secretary or the assistant secretary and approved by the treasurer or the assistant treasurer. All securities of this corporation shall immediately upon receipt thereof by the corporation or any director or officer thereof be forthwith deposited by the secretary or the treasurer with a depository of this corporation for safekeeping, and after such deposit such securities shall be withdrawn only upon and by resolution of the board of directors.

CHAPTER XIII RESERVE FUND

Section 1. As soon as practicable in the judgment of the board of directors, the surplus funds of this corporation shall be deposited in savings banks at interest or invested in such securities as may be authorized by law for investment of the funds of savings banks in the State of California, which funds and securities shall be known as the reserve fund of this corporation. It shall be the duty of the members, directors and officers, as far as possible, to conserve, enlarge and build up such reserve fund.

CHAPTER XIV BOOKS AND PAPERS

Section 1. The books and papers of this corporation shall at all times during business hours be subject to the inspection of any active member of the California Medical Association.

CHAPTER XV FISCAL YEAR

Section 1. The fiscal year of this corporation shall begin on the fourth Saturday of May of each year.

CHAPTER XVI TRANSFER OF FUNDS OR PROPERTY

Section 1. The board of directors may at any time and in its discretion give, transfer, assign, or convey to the California Medical Association or any nominee thereof all or any of the money or other property, real or personal, of this corporation and without any consideration being received therefor.

CHAPTER XVII SEAL

Section 1. The corporation shall have a corporate seal consisting of a circle having on its circumference the words "Trustees of the California Medical Association, San Francisco, California, Incorporated, May 8th, 1930," with figures of a grizzly bear and the caduceus shown in the center.

CHAPTER XVIII AMENDMENTS

Section 1. These by-laws may be altered or amended or new by-laws adopted as follows: By written assent of two-thirds of the members of this corporation or by the affirmative vote of two-thirds of the members of the corporation at any annual meeting thereof or at any special meeting called for such purpose.

Minutes of the One Hundred and Ninety-Fifth Meeting of the Council of the California Medical Association

*Approved at the One Hundred and Ninety-Sixth
Meeting of the Council of the California
Medical Association, September 27, 1930*

Held in the offices of the Association, Room 2004, 450 Sutter Street, San Francisco, Wednesday, June 4, 1930, at 10 a. m.

Present.—Doctors Harris, Hamlin, Kelly, Arnold, DeLappe, Phillips, Rogers, Cushman, Ewer, Kress, Pope, and General Counsel Peart.

Absent.—Doctors Moseley, Coffey, Palette, Kinney, Duffield, Hunter, Catton, and Peers.

1. **Call to Order.**—The meeting was called to order by the chairman, Oliver D. Hamlin.

2. **Minutes of the Council and Executive Committee meetings.**—The chairman of the Council stated that the minutes of the last two meetings of the Council and the last meeting of the Executive Committee had not been mailed to councilors. It was the sense of the Council that approval of the minutes lie over until the next meeting of the Council.

3. **In re Letter From Hewlett Club and Other Members of the California Medical Association on Certain House of Delegates Resolutions.**—Chairman Hamlin stated that, pursuant to the call for this special meeting of the Council, certain correspondence from members of the Hewlett Club and of some members of the San Francisco County Society was now before the Council for consideration. He stated the correspondence had to do with an editorial with appended resolutions unanimously passed by the House of Delegates at the recent Del Monte annual session, which had the caption "California Acquires Two Foundations for Cancer Research" and which was printed in the May issue of CALIFORNIA AND WESTERN MEDICINE, page 360.

Doctor Hamlin stated he would ask Doctor Kelly, who had all the data and was familiar with the points in question, to present the details to the Council.

Doctor Kress stated that since the men in the south were not entirely familiar with the situation,

he would request that the correspondence be taken up from the time it first came to the Association office and that Doctor Pope first report on the manner in which the letter from the Hewlett Club members came before the Council.

Doctor Pope then stated that late in the afternoon of Monday, May 19, she had received a telephone call from Dr. Dohrmann Pischel asking if he and Doctor Garland could come to the office and talk with her. Doctors Pischel and Garland arrived shortly before five o'clock and said they had been delegated by the Hewlett Club to present a letter from the club and certain members of the San Francisco County Society (about thirty in all). They stated their letter had to do with the resolution passed by the House of Delegates at Del Monte on April 30, 1930, in which appreciation was expressed for the donations which had brought into being the Kellogg Foundation for Cancer Research at San Francisco, and with the editorial comments or foreword to the said resolution which had appeared under the caption "California Acquires Two Foundations for Cancer Research" on page 360 of the May issue of CALIFORNIA AND WESTERN MEDICINE. Further, that they would like their own letter in regard to the same to be printed in the next or June issue of CALIFORNIA AND WESTERN MEDICINE.

Doctor Pope told them that CALIFORNIA AND WESTERN MEDICINE went to press on the 20th of each month, but that in emergency cases the closing date was not adhered to strictly. They asked for an answer as to publication within three days, but stated later that they only wanted an answer before the forms for the June issue of the JOURNAL were closed.

Doctor Pope stated that she had glanced at the letter, but had not noticed that it was addressed to the editor, and that during the discussion with Doctors Garland and Pischel it had passed through her mind that this was a question for decision by the Council. On arriving home that evening, Doctor Pope stated she telephoned the chairman of the Council, Doctor Hamlin, and told him of the contents of the letter and that he had authorized the letter which had been sent to all councilors. Doctor Pope stated that she had not told Doctor Hamlin that the letter was addressed to the editor since she was under the impression that it was addressed to the Council.

Doctor Kelly then read the letter sent out by Secretary Pope, also the letter of the Hewlett Club, the editorial which, with the approval of the Council at its last Del Monte meeting had been published in the May issue of CALIFORNIA AND WESTERN MEDICINE, and a letter from C. W. Durbrow, Esq., attorney for Doctor Coffey, who had written that Doctor Coffey being in Europe at this time, he felt it his responsibility as attorney for Doctor Coffey, to act on Doctor Coffey's behalf.

Doctor Kelly stated that as chairman of the Executive Committee he had taken the responsibility of giving a copy of the letter which Mr. Durbrow had sent to the Council, to representatives of the Hewlett Club. Doctor Kelly expressed his disapproval of Mr. Durbrow's letter. A letter from Doctor William Dock of San Francisco objecting to the language of Mr. Durbrow's letter was then read by Doctor Hamlin.

Mr. Peart and Doctor Kress expressed the opinion that the proper procedure would have been to have forwarded to the editor of CALIFORNIA AND WESTERN MEDICINE, the original letter from the Hewlett Club which was addressed to the editor.

It was also pointed out that the modified Hewlett Club letter of May 14, to which some signatures were attached, and which had been submitted on Tuesday, June 3, was changed in some respects from the original letter which had been filed with the secretary on May 19.

Mr. Peart then read an opinion which had been prepared by his associate, Sylvester McAtee, on the question of possible libelous matter contained in the letter of the Hewlett Club, in which opinion it was pointed out that the letter, if printed in CALIFORNIA AND WESTERN MEDICINE might be construed as a possible basis for a libel action.

Doctor Kelly informed the Council that he had asked the representatives of the Hewlett Club to call him on the telephone at 11:30 a. m. and he would then advise them whether or not the Council wished them to appear before it; but that they had come in person and were awaiting the Council's pleasure in the ante room, if it was the Council's wish to hear them. Doctors Kelly and Ewer expressed the opinion that it would be desirable to have the representatives appear before the Council. Doctors William Dock, Dohrmann Pischel and Donald Carson were then presented to the Council.

Doctor Hamlin told the committee that while the Council appreciated the right of members to disapprove of its actions, the members of the Council always made an earnest endeavor to act for the best interests of the Association and of scientific medicine as a whole.

Doctor Dock stated that the only thing that the members of the Hewlett Club were anxious to put on record was that they did not agree with the editorial comments and part of the resolution passed by the House of Delegates; that the letter that they had addressed to the editor was very hastily put together and they would be glad to make any changes requested to make it acceptable for publication; that they did not wish to get the Association into a law suit; but they did wish to put on record the fact that one of the features referred to in the letter was one which in their opinion the Association should not commend in any way, namely, the question of how publicity had been handled by Doctor Coffey. Doctor Dock stated that the letter was not meant as a personal attack on Doctor Coffey or a criticism of the House of Delegates. Doctor Dock stated they did not know whether the letter would be published in CALIFORNIA AND WESTERN MEDICINE but they had expected a reply telling them whether it should be changed or modified or if it was rejected for publication altogether.

In the discussion which followed it was brought out, that the original letter addressed to the editor by members of the Hewlett Club, and other San Francisco colleagues, and which was of date of May 14, 1930, had been presented to Secretary Pope on May 19, and that the said copy had one written signature and some thirty-four typewritten names. It was a copy of this letter which was sent out as an enclosure of the secretary's letter of May 20 to the members of the Council of the California Medical Association. It was also brought out in the discussion that on June 3, a redraft with certain changes had been left with Secretary Pope, this redraft having the same names attached thereto, but practically all in separate groups of signatures, which signatures had been pasted to the draft which was then left with Secretary Pope.

In reply to Doctor Dock, Doctor Kress, the editor of CALIFORNIA AND WESTERN MEDICINE, told Doctor Dock that he agreed that the Hewlett Club had a right to expect a reply from the editor, but as the editor had never received the original or a copy of the letter except as it came to him as a matter of presumable Council business he had not been in a position to reply to the committee, without going over the heads of the Council. Doctor Kress then read and gave to Doctor Dock a copy of his letter of May 21, which he wrote to Secretary Pope on the same day on which the matter first came to his attention, and requested that Doctor Dock acquaint his colleagues with this reply. Doctor Kress called the attention of Doctor Dock and the committee to the fact that while the brief introductory comments to the Cancer Research Foundation resolutions had been written by him, that those comments did not discuss the adrenal cortex extract experiments of Doctors Coffey and Humber, and had been read to the Council in regular meeting at Del Monte before being sent to the printer; and that it had been unanimously voted by the Councilors at that meeting to print the comments as they appeared on page 360 of the May issue of CALIFORNIA AND WESTERN MEDICINE. Also that a previous editorial in the March issue of

CALIFORNIA AND WESTERN MEDICINE entitled "Two Recent California Researches—the Aschheim-Zondek Pregnancy Test and the Coffey-Humber Cancer Experiments," had also received the unanimous approval of the Council, prior to publication.

Mr. Peart, Counsel of the Association, in reply to certain points brought out by Doctor Dock, stated that none of the correspondence had been referred to him for a legal opinion although to his mind, the editor and the legal counsel of the Association presumably had very special and direct interest in the matters under consideration, since a possible libel suit would especially concern them.

A general discussion then followed in which the embarrassments which had arisen in the matter were talked over from different angles by members of the Council and Doctor Dock.

At the conclusion of the discussion, on motion of Doctor Kress, it was voted:

That a vote of thanks be given Doctors Dock, Carson and Pischel for having come before the Council to explain in more detail what had been in the minds of the members of the California Medical Association who had signed the communication of May 14.

Action on the Hewlett Club Letter of May 14.—The Council then took up for consideration the Hewlett Club letters and the other letters and facts which had been brought out in the discussion at this special Council meeting and it was agreed, Doctor Kelly voting no, that the consensus of opinion of the members of the Council as brought out in the discussion, be prepared in proper form and that a committee consisting of the editor, the chairman of the Executive Committee, and the legal counsel be instructed to put the skeleton resolution as verbally agreed upon in general discussion, into proper form for submission in the minutes.

This committee later brought in the following resolution to be inserted into the minutes of this meeting, subject to the approval of the Council at its next duly called meeting:

Whereas, A certain communication dated May 14, 1930, signed by some thirty members of the California Medical Association, discussing certain editorial policies and a resolution of the House of Delegates of the California Medical Association, which appeared in the May issue of CALIFORNIA AND WESTERN MEDICINE was presented at the central office of the Association on May 19, 1930; and

Whereas, Said communication had been considered and discussed at a special meeting of the Council called for that purpose and held on the fourth day of June, 1930; and

Whereas, It would seem to the best interests of the California Medical Association and organized medicine that for the time being no action be taken thereon; the Council recognizing the while the right of all members to offer their viewpoints of the acts and policies of its governing bodies; now therefore be it

Resolved, That the said communication be not printed in the June issue of CALIFORNIA AND WESTERN MEDICINE but be placed in the file for further consideration.

Discussion was had of the reply to Mr. Durbrow's letter and on motion of Kress, duly seconded, the following resolution was adopted, Doctor Kelly voting no.

Resolved, That the chairman of the Council with the advice of the general counsel and the assistance of the chairman of the Executive Committee reply to the letter of Mr. Durbrow in the manner suggested by the Council.

5. (See footnote.)

6. **Adjournment.**—There being no further business the meeting adjourned.

OLIVER D. HAMLIN, *Chairman.*

EMMA W. POPE, *Secretary.*

Note.—Item 5 refers to the matter of group insurance, and publication will be made in due time.

Additional Minutes Relating to Action Taken by the Council on the Hewlett Club Letter of Date of May 14, 1930

Excerpted From the One Hundred and Ninety-seventh Meeting of the Council Held at Los Angeles, September 27, 1930. These Minute Items Approved by Mail Ballot of Council, on October 24, 1930

12. **Letter From the Hewlett Club and Other Members of the California Medical Association.**—The secretary read a letter dated July 29, 1930, addressed to the chairman, signed by T. Addis for the signers of the original letter, protesting against certain resolutions of the House of Delegates, and asking that immediate publication be made of the letter of protest and enclosing statement to be sent out to all members of the California Medical Association in the event that publication was refused. The secretary also read a letter dated August 28, 1930, signed by T. Addis for the signers of the letter of protest and addressed to the chairman, stating that the signers would not resort to publication in the form of a communication to members unless the Council should decide to refuse access to the society's publication, and that they would await the Council's decision on September 27.

Discussion was then had on the publication of the original letter. It was pointed out that an article had been published by Doctor Coffey giving his findings and that scientific experiments could now be carried on by others and the results thereof recorded. The advisability of publication of the letter in the Correspondence column which would be headed by a notice of nonresponsibility for the material contained thereunder was discussed. It was pointed out that such notice would not release the Association from responsibility for publication of libelous matter. The right of members of the Association in seeking publication of letters of criticism or disagreement with expressed policies was acknowledged, but the Council felt that such letters should be free from all libelous or untrue statements. The original letter of the Hewlett Club and other members of the Association filed with the secretary on May 19, 1930, and the amended letter filed with the secretary June 3, 1930, were then discussed in detail, and certain statements contained therein which might be construed as libelous were pointed out.

Doctor Coffey then outlined his investigations in connection with the adrenal cortex extract and discussed the publicity which had appeared in the newspapers. Doctor Coffey expressed the desire to meet with the signers of the letter from the Hewlett Club and certain members of the San Francisco County Medical Society in regard to the subject.

Doctor Kelly then spoke of the value of harmony within the Association and stated that three alternatives presented themselves: (1) To take no action, which would leave the members of the Association with the feeling that the Council had refused to give them what they had a right to; (2) to ask the signers to send in another letter eliminating possible libelous statements, which could be passed on by a committee of three before publication in the JOURNAL; (3) to do as Doctor Coffey has suggested and arrange a meeting with the signers before final request is denied or granted.

13. **Noon Adjournment.**—At this point adjournment was taken for luncheon.

14. **Call to Order.**—The meeting was called to order by the chairman, who stated that before discussion was resumed on the letters from the Hewlett Club, some of the minor matters on the docket would be dispensed with.

28. **Letters From the Hewlett Club and Other Members of the California Medical Association.**—The question of publication of the letters of the Hewlett Club was then brought up.

Action by the Council.—On motion of Pallette, seconded by Cushman and unanimously carried, the following resolution was adopted:

Whereas, It appears that the letter of members of the Hewlett Club and other members of this Association, filed with the secretary May 19, 1930, and

the amended letter filed with the secretary June 3, 1930, publication of which in *CALIFORNIA AND WESTERN MEDICINE*, is requested by the signers thereof, may, in the opinion of the attorney of this Association be hereafter adjudged to contain libelous matter; and

Whereas, It is, and always has been the policy of the Association, to hold the columns of the official journal of this Association open for the publication of any relevant communication from any of its members, when couched in proper, nonlibelous language; now, therefore, be it

Resolved, That said letters be not published in their present form; and be it further

Resolved, That the president-elect, the chairman of the Council, and the councilor-at-large from San Francisco, Joseph Catton, are directed to arrange a meeting with the signers of these letters, to lay before them certain facts relating to matters referred to therein for their consideration, and that Doctors Coffey and Humber be invited to attend this meeting, in accordance with Doctor Coffey's suggestion made at this meeting of the Council; and be it further

Resolved, That, if as a result of such conference said members desire to have a communication published and a letter may be prepared, which, in the opinion of the Executive Committee of the Association, is proper in its language and its statement of facts, the editor of *CALIFORNIA AND WESTERN MEDICINE* is hereby directed to publish the same; and be it further

Resolved, That a copy of this resolution be forwarded by the secretary to the signers of said letters.

O. D. HAMLIN, *Chairman*
EMMA W. POPE, *Secretary*

THE WOMAN'S AUXILIARY OF THE CALIFORNIA MEDICAL ASSOCIATION*

A Letter from the President

October 6, 1930.

To the Officers and Members of the Woman's Auxiliaries of the California Medical Association:

Dear Fellow Members:

By action of the Council of the California Medical Association, reprints of an editorial which appeared in the September issue of *CALIFORNIA AND WESTERN MEDICINE*, will shortly be sent to all county Woman's Auxiliaries. If your county unit does not receive its quota of these reprints, kindly write to the State Medical Association secretary, Dr. Emma W. Pope, 450 Sutter Street, Room 2004, San Francisco, making a request for same.

As president of the State Woman's Auxiliary of California, I am writing to urge that the officers have this editorial read at one of the meetings and that copies be then distributed or mailed to the members.

If the county auxiliaries are to move forward in organized form, it is essential they should all understand their relationship to the organized medical profession of California, to the State Woman's Auxiliary, and to the other county woman's auxiliaries. This reprint will help make these relationships more clear to all.

I would emphasize the desirability of forming a central committee in each county unit, each member of which should be a chairman of a subgroup, each subgroup in turn to carry on a special investigation of some field of public health or social service work concerning which your auxiliary should have from time to time a report.

* As county auxiliaries to the Woman's Auxiliary of the California Medical Association are formed, the names of officers should be forwarded to the state secretary-treasurer, Mrs. Dexter R. Ball, 2419 Bonnie Brae Street, Santa Ana, and to the California Medical Association office, Room 2004, 450 Sutter Street, San Francisco. Brief reports of county auxiliary meetings will be welcomed for publication in this column.

To accomplish this end to best advantage, our state program chairman, Mrs. Frank E. Coulter, president of the Orange County Woman's Auxiliary, has constructed an instructive six months' suggested program, building an educational foundation for future work, local or otherwise. Coincidentally, this progresses through the list of activities mentioned in the reprint. Mrs. Coulter also offers additional helpful suggestions which will accompany her formal program.

I would like to emphasize to our auxiliaries the importance of taking only an indirect interest in civic politics, in other words, that we should strive to obtain from our advisory committee of each county medical society the names of candidates who seemingly are most worthy of support, but we should be careful not to permit the names of county woman's auxiliaries to be used in the public pleas of having endorsed this or that candidate for office. In this way we will probably save ourselves considerable embarrassment when political situations complicate themselves, as they so often do in political matters.

I am sure you will agree that in the long run such a policy is the wiser method to follow.

We need particularly to stand back of the Legislative Committee of our California Medical Association, which does much constructive work in the interests of organized medicine, and it will probably be wise for the county auxiliaries to keep in touch with their state officers to know what we can do to aid them along these lines.

Emphasizing and urging self-education in these matters, may I suggest that each member read "Editorials," pages 611 and 612, August issue, *CALIFORNIA AND WESTERN MEDICINE*, containing two articles, "Medico-Economic Problems" and "A Proposed Chiropractic Initiative" (which latter fortunately failed to get on the ballot for lack of sufficient signatures).

I wish you to know also that your State Woman's Auxiliary officers are carrying on a definite program to promote the development of more county woman's auxiliaries and ask for fullest coöperation of all of you in all efforts toward that end.

With best wishes for the continued progress of our work,

Cordially yours,

EDNA B. PERCY, *President*.

Programs and Suggested Speakers for Counties Where County Health Unit Exists

SUBMITTED BY PROGRAM COMMITTEE OF WOMAN'S
AUXILIARY

September—"Why an Auxiliary."

Speaker, if possible, one of the State Auxiliary officers, preferably the state president or Doctor Duffield.

October—"Working Principles of Our Own County Health Unit."

Health officer.

November—"Common Defects in Children" or "Contagion and Immunization."

School physician.

December—"Teeth and Their Relation to Health."

School dentist.

January—"What We Are Doing for the Physically Underprivileged Child."

Member of staff preventorium.

February—"Mental Hygiene."

Local psychiatrist.

March—Book Review.

a. "The Human Mind" by Menninger.

b. "What Our County Is Doing for Its Mentally Ill."

Member Educational Committee.

April—"Our State Health Laws, Their Accomplishments and How They Affect Us."

Member Legislative Committee, County Medical Association.

- Programs and Suggested Speakers for Counties Where No Health Unit Exists**
- September—"Why An Auxiliary."
Speaker, if possible, one of the State Auxiliary officers, preferably the state president or Doctor Duffield.
- October—"Advantages of County Health Unit."
Member of local auxiliary—Using program of Woman's Auxiliary of the American Medical Association as reference.
- November—"Common Defects in Children."
Local pediatrician. Member of the California Medical Association.
- December—"Contagion and Immunization."
Member of County Medical Association.
- January—"Local Health Problems."
This may include milk, bread, or water supply, and housing problems.
- February—"What Our County or State Is Doing for the Mentally Ill."
Superintendent of State Hospital for Insane.
Superintendent of County Hospital.
Superintendent of Private Sanitarium.
- March—Book Review.
"The Human Mind" by Menninger.
- April—Book Review.
"Biography of the Virginal Mind" by Dakin, or
"Our State Health Laws, and Their Achievements and How They Affect Us."
Member Legislative Committee, County Medical Association.

At each meeting of each auxiliary, medical current events, including new discoveries, new accomplishments and happenings of special interest to the medical profession.

The Educational Committee should be alert to tie together the address as presented by the speaker to local conditions. I should also feel that this committee should also present to the auxiliary some local needs—drinking fountains, hospital library, comforts for indigent, and milk for underprivileged children as local conditions may present. This is all an important part of the program, but must be worked out according to local needs.

(MRS.) FRANK EDWIN COULTER,
Chairman Program Committee.

- NEVADA STATE MEDICAL ASSOCIATION**
- W. A. SHAW.....President
R. P. ROANTREE, Elko.....President-Elect
H. W. SAWYER, Fallon.....First Vice-President
E. E. HAMER, Carson City.....Second Vice-President
HORACE J. BROWN.....Secretary-Treasurer
R. P. ROANTREE, D. A. TURNER,
S. K. MORRISON.....Trustees

COMPONENT COUNTY SOCIETIES

WASHOE COUNTY

The Washoe County Medical Society met in the Nevada State Building on the evening of October 14. Dr. E. E. Creveling, vice-president, presided. Following the usual routine of business, the secretary read, in the absence of Doctor Thompson, a very brief paper on "Cerebrospinal Fluid Findings Following Cerebrospinal Meningitis." Also the findings, as known today, on Encephalitis Lethargica.

Following this the secretary read the names of the society members and noted, with the exception of a few individuals, that all the regular practicing physicians of this county are identified with the society.

Dr. J. L. Robinson, who has been very active in the work for the County Community Hospital, gave a brief talk, explaining some of the mooted legal

points which might possibly call for further explanation before the proposition goes on the ballot at the November election. The indications are that Washoe County will vote by a large majority their approval to authorize a change in the present system of county hospitalization.

The County Library Committee reported that the Library Association would spend several hundred dollars per year to place approved medical journals and other publications on file for the benefit of the medical and lay public.

Following this, the society was splendidly entertained by a four-reel movie on "Traumatic Surgery," very generously furnished for the use of the society by the Davis & Geck suture people of Brooklyn, New York. The picture was modern to the last minute. There was a good representation of the membership present.

THOMAS W. BATH, *Secretary.*

- UTAH STATE MEDICAL ASSOCIATION**
- WILLIAM L. RICH, Salt Lake City.....President
R. A. PEARCE, Brigham City.....President-Elect
M. M. CRITCHLOW, Salt Lake City.....Secretary
J. U. GIESY, 701 Medical Arts Building,
Salt Lake City.....Associate Editor for Utah

COMPONENT COUNTY SOCIETIES

SALT LAKE COUNTY

The regular meeting of the Salt Lake County Medical Society was held at the Salt Lake General Hospital Monday, September 22.

The meeting was called to order at 8:10 p. m. by President M. M. Nielson. Forty-one members and eleven visitors were present.

The minutes of the meeting of June 9 were read and accepted without correction.

The following clinical program was presented:

Rheumatic Fever, Doctor Van Scoyoc; Amebic Abscess of Liver, Doctor McNeil; Treatment of Osteomyelitis, Doctor Snow; Exostoses of Knee Joint, Doctor Stegman; Plastic Surgery, Doctor Alexander; Meckel's Diverticulum, Doctor Woolsey.

The application of J. E. Felt was read and turned over to the board of censors.

Doctor Fields gave a verbal report of the Committee of Credits, and L. N. Ossman moved that this committee be continued until some action could be recommended. Seconded and carried.

President Nielson read the report of the Salt Lake Visiting Nurses' Association, and urged that physicians utilize this service.

F. Spencer announced that a special car had been secured to take members of this society to the Nevada state medical meeting on the 26th and 27th of September at Reno. He informed the society of the program and the various arrangements made for the trip.

R. J. Alexander stated that the new social service worker at the hospital frequently called up physicians regarding questionable charity patients, and urged that the doctors give her every possible consideration in the course of such conversations.

M. M. Nielson announced that the Necrology Committee had formulated a resolution to be sent to the family of Mark Brown, who at one time was a member of this society.

M. M. Nielson announced that the next meeting would be held at an irregular date, to be announced later, because of the fact that some difficulty was being encountered in obtaining an out-of-town speaker.

The meeting adjourned at 9:50 o'clock, after which refreshments were served by the nurses.

BARNET E. BONAR, *Secretary.*

MINUTES OF THE 1930 ANNUAL SESSION OF THE UTAH STATE MEDICAL ASSOCIATION

First Meeting of the House of Delegates

Held at the Memorial House, Memory Grove, Salt Lake City, Utah, September 9, 1930, at 12 m.

I. **Call to Order.**—The president called the meeting to order.

* * *

II. **Roll Call.**—The secretary called the roll and declared a quorum to be present.

* * *

III. **Reading of Minutes.**—On motion of Doctor Kahn, seconded by Doctor McHugh and carried, reading of the minutes was dispensed with.

* * *

IV. Presentation of Reports:

1. **Committee on Credentials.**—The Committee on Credentials reported that the delegates and representatives from the component societies were present and seated.

2. **Report of the President** was given by Doctor Kirtley.

3. **Report of the Secretary.**—On request of the chair, Doctor Critchlow submitted his report for the year 1929-1930.

4. **Report of the Treasurer.**—On request of the chair, Doctor Le Compte submitted his report.

5. **Report of the Council.**—The chair presented the apologies of Doctor Goeltz, stating that Doctor Goeltz would be absent a month or six weeks.

6. **Reports of Committees.**—(a) Committee on Scientific Work—The secretary read the report in the absence of Dr. Gill Richards, chairman.

(b) Committee on Public Policy was read by the Secretary.

(c) Committee on Publication rendered no report.

(d) Committee on Medical Defense—At the request of the chair, Doctor Root reported that his written report was in the hands of the secretary. As the secretary had not brought the report to the meeting, Doctor Brown asked that Doctor Root discuss the vital point in his report, the necessity of medical defense.

Discussion followed and the president suggested that the chairman present a resolution that an attorney be retained by the Utah Association who could be consulted by the Association.

(e) Committee on Medical Education and Hospitals—At the request of the chair, Dr. L. J. Paul presented his report.

(f) Committee on Medical Economics report was given by the secretary.

(g) Committee on Public Health—The secretary stated no report had been submitted by the committee.

(h) Committee on Necrology—Doctor Brown reported that his committee would not be ready to submit a report until the following day.

(i) Committee on Local Arrangements—At the request of the chair, Dr. C. J. Pearsall, chairman, submitted his report.

* * *

V. New Business:

1. **United States Reserve Officers Regulations.**—The secretary read a letter from the Minnesota State Medical Association requesting endorsement of the following resolution:

Whereas, The present Army regulations require that every reserve officer shall, during each five years' commission period, put in two hundred (200) hours' military work, in camp, correspondence school, inactive training meetings, or similar military activity, or else become ineligible for renewal of his commission with assignment to an Organized Reserve Unit, and therefore revert to the "Auxiliary Reserve" in time of peace; and

Whereas, There are many highly trained, highly skilled and very active physicians who, as reserve officers, have

been assigned as chiefs and assistant chiefs of surgical, medical, laboratory, roentgen and other distinctly professional services in Organized Reserve Hospital Units, carrying very little administrative responsibility, and whose professional duties in busy private lives make them especially well fitted for their duties in their army assignments, but whose same duties make it practically impossible for them to carry on military work in time of peace; and

Whereas, Many of these men and their valuable attainments are being lost to the Organized Reserve, although they are willing and anxious to serve in time of need and do not aspire to advancement in grade; therefore, be it

Resolved, That the Minnesota State Medical Association, desiring that the medical profession may be of the greatest service to our country, respectfully suggests that the service might be enhanced if the regulations were changed to provide for recommission and reassignment of chiefs and assistant chiefs of professional services of hospital units even though they have not completed the required amount of military work; and further, be it

Resolved, That a copy of this resolution be sent to the surgeon and commanding general of the Seventh Corps Area, the surgeon general, the officer in charge of Reserve affairs, the adjutant general, and the chief of staff of the United States Army.

On motion of Kerby, seconded by Stookey, the matter was referred to a special committee for report to the House of Delegates at the next meeting.

The president appointed Colonel Kerby, Colonel Benedict, and Major Critchlow members of the special committee.

2. **Washington Memorial.**—The secretary presented a letter from the United States Commission for the Celebration of the Two Hundredth Anniversary of the Birth of George Washington, together with the following resolution:

Whereas, The Congress of the United States has created a commission to arrange a fitting nation-wide observance of the two hundredth anniversary of the birth of George Washington in 1932; and

Whereas, The commission so created, composed of the President of the United States, the Vice-President of the United States, the Speaker of the House of Representatives, four members of the United States Senate, four members of the House of Representatives, and eight citizens appointed by the President of the United States, is charged with the duty of planning and directing the celebration; and

Whereas, The high purpose of the event is to commemorate the life, character and achievements of the most illustrious citizen of our republic and to give every man, woman and child living under the Stars and Stripes an opportunity to take part in the celebration which will be outstanding in the world's history; and

Whereas, The George Washington Bicentennial Commission, desiring the full cooperation of the people in the United States, has extended a most cordial and urgent invitation to our organization to participate in the celebration; therefore, be it

Resolved, That the Utah State Medical Association does hereby endorse the program of observance of the two hundredth anniversary of the birth of George Washington, to take place in 1932; accepts with appreciation the invitation of the George Washington Bicentennial Commission, and pledges this organization to extend earnest cooperation to the United States Commission in all possible ways so that future generations of American citizens may be inspired to live according to the example and precepts of Washington's exalted life and character, and thus perpetuate the American Republic; and be it further

Resolved, That this resolution be incorporated in the official proceeding of this meeting and that a copy thereof be transmitted to the George Washington Bicentennial Commission, Washington, D. C.

On motion of Critchlow, seconded by Kirtley, the foregoing resolution was adopted.

3. **Annual Dues.**—Doctor Le Compte, treasurer of the association, moved that the annual dues be increased to \$7. Doctor Le Compte's motion was seconded and carried. The president requested Doctor Le Compte to put his motion in the form of a resolution that it could be referred to the Reference Committee. (Motion to increase dues was defeated the following day.)

* * *

VI. **Adjournment.**—There being no further business the meeting adjourned to meet at the close of the general session on the following day.

Second Meeting of the House of Delegates

Held at the Memorial House, in Memory Grove, Salt Lake City, Utah, September 10, 1930, at 1 p. m.

The president stated that Mr. Goldings had modified his statement that there were 677 licensed doc-

tors in Utah, giving 585 as the number of regularly licensed doctors of medicine, the others belonging to other schools of medicine than the regular M. D.'s.

I. Call to Order.—The meeting was called to order by President Kirtley.

* * *

II. Roll Call.—The secretary called the roll and a quorum was reported present.

* * *

III. Reading of the Minutes of the First Meeting. The secretary read the minutes of the first meeting of the House of Delegates, and there being no objections the minutes were approved as read.

* * *

IV. Report of the Reference Committee.—The president then declared the next order of business was the presentation of the report of the Reference Committee. Doctor J. Z. Brown, chairman, then presented the following report on behalf of his committee:

Commendation of Work of Officers.—We compliment our president, Doctor Kirtley, on the efficient service he has given us during his term of office. The brevity of his report is in no way an index to the enormous amount of arduous work he has done.

We likewise commend the very efficient labors of our secretary, who is by far the most heavily burdened officer of our organization. He must attend to so many details.

We heartily approve the efficient manner in which the treasurer safeguards our funds. His vouchers are so drawn that they must first be approved by the secretary and inspected by the president before they are issued.

Increase in Membership.—Your Reference Committee urges that vigorous efforts be made by all the component county societies to enroll all registered physicians as members. If we succeed in gathering in as many as 50 per cent of them there will be no need of raising the dues to increase revenue. Let us increase membership rather than dues.

Tax on Earned Incomes.—We endorse the recommendation of the Council that the Public Policy Committee pay special attention to the proposed state tax on earned incomes—to attend meetings and oppose it, and further that they scrutinize closely the deliberations of the legislature which meets in January, 1931.

Associate Membership.—In going over the Constitution of the State Association, we find we have no provision there for associate members. Now this was read by the Council and returned to the Salt Lake County Medical Society, I suppose, for further consideration. Your committee recommends that this be referred to the American Medical Association for suggestions.

Coöperation with Committee on Medical Defense.—We urge that the society, through its secretary, urge men that are threatened with lawsuits to coöperate with these committees. The recommendation which this committee makes is as follows: A very great deal of thought has been given by your committee and others interested regarding the matter of creating a medical defense fund by the state society, sufficient for a retainer, by the year, of a competent and trained medical defense attorney, in order that your committee may at all times have competent legal advice, and probably thereby prevent many of the court cases. Also, this fund should be large enough to cover minimum expenses in court attendance by medical men who may be desired to be present at court and not otherwise financially provided. The committee heartily endorses the adoption of such a measure.

Committee on Medical Education.—We endorse the recommendation of the Committee on Medical Education. There is one suggestion here that this committee recommends which Doctor Paul read yesterday: "The president of the university and the dean

of the medical college called the attention of the committee to the need for donations or bequests from wealthy citizens of this state or surrounding country. It was suggested that steps be taken by influential members of the State Medical Association to solicit or create interest in this direction. The names of several influential persons were suggested, but the chairman of this committee did not feel authorized to direct the interviews or communicate with influential persons without specific authority from the Utah State Medical Association. It is therefore, recommended by this committee and by the authorities at the University of Utah that steps be taken by the Utah State Medical Association, either through publicity or the appointment of a special committee, to create interest and secure, if possible, the assistance of influential, wealthy people of this state in establishing either memorials or scholarships at the University of Utah Medical Department."

In connection with this the committee endorses this recommendation very heartily.

In connection with this I wish to state that in Salt Lake County we had an organization known as the Community Clinic. It was begun and fostered by philanthropic people and it ran for a number of years, but finally degenerated and dissolved. Along this same line a radium organization was effected and this radium has been used by the Radium Company, and after the thing had gone on for some length of time the company began buying the stock of different donors who had purchased it. The Radium Company have now reorganized their organization with one representative of each of the four hospitals serving on the board. In December, \$600 was donated to the Salt Lake County Medical Society for library purposes as the income for the year.

If these matters can be properly presented to the average layman wherein they can see that we are working for the welfare of the community and also for the welfare of the profession, many wealthy people will make contributions.

Committee on Public Health.—We have received no report from the Committee on Public Health.

Committee on Necrology.—I have a report from the Committee on Necrology, which will be published in CALIFORNIA AND WESTERN MEDICINE.

We compliment the work of the committees on necrology and postgraduate work.

Commendation of Committee on Arrangements.—We especially congratulate Doctor Pearsall, chairman of the local committee on arrangements, together with the committees on banquet, entertainment and golf, transportation and housing, on the efficiency and dispatch with which they look after our comfort.

The Reference Committee recommended the adoption of the report as a whole.

Doctor Brown moved that separate discussion first be had on that section of the report on associate memberships. After discussion, Doctor Brown's motion was seconded and carried.

Doctor Brown's original motion that the report of the Reference Committee be accepted was then seconded and carried.

The question of necessary change in by-laws for associate membership was fully discussed, and on motion duly made and seconded, a special meeting of the House of Delegates was voted. On motion of McHugh, duly seconded and carried, the following resolution was then adopted:

Resolved, That this State Association permit the component county societies to elect to their membership associate members, these members to enjoy all the rights and privileges of the society except that of voting or holding office; and that these associate members shall not be eligible to regular membership.

The president announced that a special meeting would be held the following day to vote on the proposed by-law.

There being no other amendments, miscellaneous business was then taken up.

* * *

V. Miscellaneous Business:

1. *Retainer for Legal Counsel.*—The secretary stated that the House of Delegates wished to present the following resolution for consideration:

Resolved, That it be the sense of the House of Delegates that a competent attorney with special training for medical defense be retained yearly to supervise and consult with the committee on medical defense, be employed to assist in suits against the members for malpractice, or in case there is no attorney otherwise employed to assume medical defense.

Doctor Root moved for the adoption of the resolution; such motion being duly seconded.

Full discussion was then had of the question, and the chair called for a rising vote on the resolution. The "ayes" carried.

2. *Reserve Army Corps.*—At the request of the chair, Doctor Kerby, chairman of the Special Committee on Reserve Army Corps, presented the following resolution:

Whereas, The present army regulations require that every medical reserve officer shall, during each five years' commission period, put in two hundred (200) hours military work—in camp, correspondence school, inactive training meetings, or similar military activity—or else become ineligible for renewal of his commission with assignment to an organized reserve unit, and therefore revert to the "auxiliary reserve" in time of peace; and

Whereas, There are many highly trained, highly skilled and very active physicians, who, as reserve officers, have been assigned as chiefs and assistant chiefs of surgical, medical, laboratory, roentgen and other distinctly professional services, and in positions requiring special technical skill such as is usually possessed by specialists, carrying very little administrative responsibility, and whose professional duties in busy private lives make them especially well fitted for their duties in their army assignments, but whose same duties make it practically impossible for them to carry on military work in time of peace; and

Whereas, Many of these men and their valuable attainments are being lost to the organized reserve, although they are willing and anxious to serve their country in time of need and do not aspire to advancement in grade; therefore be it

Resolved, That the Utah State Medical Association, desiring that the medical profession may be of the greatest service to our country, respectfully suggest that the best interests of the military service might be enhanced if the regulations regarding the organized reserve were changed to provide for the recommission and reassignment of officers holding assignments such as those mentioned in the second paragraph, even though they may not have completed the required amount of military work, and hereby recommend consideration of such change; and further be it

Resolved, That a copy of this resolution be sent to the corps surgeon and the commanding general of the Ninth Corps Area, the surgeon general of the army, the officer in charge of organized reserves, the adjutant general of the army, the chief of staff of the army, and the secretary of each state medical association.

On motion duly made and seconded, the resolution was adopted.

3. *Standing Committee on Military Affairs.*—Doctor Kerby moved that a standing committee on military affairs be had and that a change be made in the by-laws to permit this, if necessary.

4. *Illness of Dr. Mark Brown.*—On motion of Doctor McHugh, seconded by Kerby and carried, it was

Resolved, That the House of Delegates express a wish for the speedy recovery of Doctor Brown with an accompanying gift of flowers.

* * *

VI. *Place of 1931 Meeting.*—On motion of Doctor Kahn, seconded by Doctor Bonar and carried, Salt Lake City was set as the place of meeting for 1931.

* * *

VII. *Election of Officers.*—The following officers were elected: President-elect, Dr. R. A. Pearse of Brigham City; first vice-president, Dr. James Kerby of Salt Lake City; second vice-president, Dr. L. J. Stookey of Price; third vice-president, Dr. Albert H. Aland of Ogden; treasurer, Dr. F. H. Haley of Salt Lake City.

* * *

VIII. *Election of Delegates and Alternates.*—Dr. Edwin D. LeCompte of Salt Lake was elected delegate to the American Medical Association and Dr. Sol G. Kahn of Salt Lake was elected alternate.

* * *

IX. *Election of Councilors.*—Dr. J. Z. Brown of Salt Lake was elected councilor for the second district and Dr. W. T. Elliott of Helper, councilor for the third district.

* * *

X. *Adjournment.*—There being no further business the meeting adjourned.

Third Meeting

Held in the Memorial House, in Memory Grove, Salt Lake City, September 11, 1930, at 12:15 p. m.

I. *Call to Order.*—The meeting was called to order by the president, W. L. Rich of Salt Lake City.

* * *

II. *Roll Call.*—The secretary called the roll and the president declared a quorum present.

* * *

III. *Reading of the Minutes.*—The minutes of the previous meeting were read, and on motion duly made and seconded, were approved as read.

* * *

IV. Old Business:

1. *Amendments to the By-Laws.*—(a) That Chapter VII, Section 1 of the by-laws of the Utah State Medical Association be amended so that there will be added to the list of already existing standing committees a Committee on Military Affairs.

On motion of Dr. J. P. Kerby, duly seconded, the above amendment was approved.

(b) Amendment to Chapter II, Section 3, insertion of the word "regular" in the clause "shall be eligible to regular membership," and by the addition of "any scientist holding a doctor's degree eligible for associate membership in each component county society. Such associate members shall pay the regular dues, but shall not be entitled to vote or hold office."

(c) Amendment to Chapter III, Section 2, insertion of the word "regular" before "members" so that it will read, "Each county society shall be entitled to send one delegate for each ten full paid regular members or major fraction thereof."

After discussion of the meaning of the term "doctor's degree," Doctor Burns moved to restrict membership to men holding an M. D. or a Ph. D. degree, specifying that if they hold a Ph. D. they must be associated with the teaching practice.

Doctor Burns' motion to amend was duly seconded and carried. The original motion to adopt the amendment to Chapter II, Section 3, and Chapter III, Section 2, was then seconded and carried.

* * *

V. *Adjournment.*—There being no further business the meeting adjourned.

MISCELLANY

Items for the News column must be furnished by the twentieth of the preceding month. Under this department are grouped: News; Medical Economics; Correspondence; Department of Public Health; California Board of Medical Examiners; and Twenty-five Years Ago. For Book Reviews, see index on the front cover, under Miscellany.

NEWS

Admission Procedure in University of California Out-Patient Department.—The out-patient department of the University of California Medical School is open daily from 8:30 a. m. until 1:30 p. m.

It is the earnest endeavor of the administration to coöperate fully with the members of the medical profession in carrying out this work, and, while taking pains to exclude all patients able to pay for medical care, to provide fully and effectively for those who are not. It is hoped that physicians who find certain of their patients to be in temporary financial distress will refer these to the clinics. Every effort possible is taken to see that such patients are returned to their personal physicians whenever their financial affairs improve sufficiently to make payments of fees possible.

When patients visit the clinics on their own initiative the admission officers do their best to communicate with the physician named as the practitioner who last cared for the applicant. Investigations are made and all applicants who are able to pay even a moderate physician's fee are refused admission to the clinic. Such prospective clinic patients are referred to their own doctor, or if they claim to have none, they are sent for advice to the secretary of the county medical society of the community in which they live.

Southern California Medical Association Meeting.

The eighty-third semi-annual meeting was held at the Hotel Virginia, Long Beach, on Friday and Saturday, October 31 and November 1.

In addition to papers by members, papers were presented by the following guests: Arthur L. Bloomfield, professor of medicine, Stanford University; Alfred C. Reed, professor of tropical medicine, University of California; J. Tate Mason of Seattle; and Verne C. Hunt, formerly of the Mayo Clinic.

There was also shown one of the first talking motion pictures on surgery as yet completed, on Pott's fracture.

The Annual Meeting of the California Section of the American Sanatorium Association will be held at Olive View Sanatorium, San Fernando, on Wednesday, November 12, 1930, at 9:30 a. m.

Speakers on the program are: Mr. H. M. Andrews, assistant superintendent, Olive View Sanatorium; Dr. E. A. Schaper, superintendent and medical director of Stonybrook Retreat; Dr. Everett Morris, superintendent and medical director of Wish-i-ah Sanatorium; and Dr. Chesley Bush, superintendent and medical director of Arroyo Sanatorium.

Alumni Day for Medical School Planned November 21.—Dean Langley Porter of the University of California Medical School announced that the next Alumni Day of the institution will be held on Friday, November 21. Invitations and programs will be sent to all practicing physicians of the state who are graduates of the university.

The program of the day will include ward rounds and operative clinics in the morning, and lectures and moving pictures and demonstrations in the afternoon.

Nursing Education.—The annual institute of the California League of Nursing Education, Northern Branch, is to be held at the Clift Hotel in San Francisco early in January, 1931.

Mrs. Elizabeth Soule, professor of nursing education, School of Science, University of Washington, has been secured to lead the institute. Mrs. Soule, who is nationally recognized as one of the leading nursing educators, is at present making a study of hospitals in Austria, Italy, Germany, and England. The Rockefeller Foundation has granted her a three months' scholarship for this work. The institute comes at a particularly opportune time, as Mrs. Soule will have recently returned from Europe and should have information of interest to all.

The program will include discussions on various phases of nursing work, and the interests of all nurses throughout California—private duty, public health, and institutional—will be thoroughly considered. The present plan for the institute provides for a talk by Mrs. Soule, both morning and afternoon of each day, followed by open discussion from the floor.

MUCH IN LITTLE *

Don't omit daily examination of ears in acute pneumonitis, especially in children.

Don't trust the nurse or patient with verbal instructions. Write them.

Don't be hasty with the diagnoses of hysteria and neurasthenia, unless conjunctival and pharyngeal reflexes are absent.

Don't omit "transillumination" in scrotal tumors. A hydrocele won't "reduce."

Don't prescribe pills for vomiting of brain tumor and intestinal obstruction.

Don't forget to rule out pulmonary tuberculosis in all patients with ischiorectal abscess and fistula. ("No internal opening to a fistula or a blind fistula, usually means a blind doctor.")

Don't be afraid to say, I don't know; it's not self-effacing.

Don't knock your fraternal M. D.
No doubt you have heard that before;
Still you keep on handing it to him,
Boosting and increasing his practice the more.

* Members of the California, Nevada, and Utah Medical Associations are invited to contribute to this column of aphorisms, which will appear from time to time in California and Western Medicine, as sufficient copy accumulates. The aphorisms in this issue were sent in by John William Shuman, M. D., Los Angeles.

CORRESPONDENCE

Subject of Following Letter: Last Month's "Bedside Medicine" Discussion of "Strabismus—When to Operate"

San Francisco, October 16, 1930.

The Editors: In offering a subject for "Bedside Medicine" column of CALIFORNIA AND WESTERN MEDICINE ("Strabismus—When to Operate"), which appeared in the October number, I did not know that it would be submitted to others to serve as a basis for discussion. Certain statements by the other discussers call for reply, therefore I hope this communication will be given a place to "close the discussion."

First, I wish to thank Doctor Barkan for his most complimentary remarks. Apparently he has been converted to my ideas as well as to my operation. The following similar comment was made by Doctor McCool in a paper on my operation before the 1929 meeting of the American Academy of Ophthalmology and Otolaryngology.

"Personal friendship coupled with a common interest in ocular muscle problems led me to try the operation shortly after his (O'Connor's) original paper was published and for the *past twelve years I have been using it to the exclusion of all other methods.* I am convinced that from the standpoint of efficiency, safety, certainty of action and the surgical principles upon which it is based that *no operation yet devised can compare with it.*" (Italics mine.)

Such commendations as those by Doctors Barkan and McCool come my way so infrequently as to be appreciated possibly out of all proportion. They prove that the old saying, "A prophet is not without honor save in his own country," is sometimes wrong.

I also wish to thank Doctor Mills for the last sentence in his discussion. I am glad he so "successfully" completed my "inadequate" beginnings. It is barely possible that I would have been equally successful had the patients returned to me. I am sorry to learn that he tries to fully correct squints in one operation. Most of our authorities on muscle surgery (Duane, Landolt, Howe, Stevens, Savage) believed that the correction, in nonparalytic cases, should be divided between the two eyes. When too much is done at one place the parallel rotations of the two eyes, and convergence, is apt to be interfered with. For this reason I tell all my patients that several operations may be needed and always ask them not to start unless willing to see it through in my way. Therefore, the ones operated by Doctor Mills violated their agreements with me.

I am sorry that Doctor McCool thinks it necessary to wait twelve to eighteen months after prescribing glasses. Much harm might result from such delay because but few mothers will persist in the alternate monocular occlusion necessary to save the sight in each eye; and because, as he admits, training of binocular vision is so unsatisfactory. If Doctor Mills is correct in his statement that most squints are due to anatomical conditions—and I have always been of the same opinion—what is to be gained by waiting?

I have been specially interested in squint work since 1907, and therefore feel that the following statement is entitled to some consideration. I have *never* seen a full and accurate correction straighten eyes unless it did so *at once*. Sometimes children, brought to me for operation, straighten *at once* with a full and accurate correction replacing a partial and inaccurate one. I am now correcting, by operation, a little girl who was wearing a pair of plus spheres .75. Her actual correction was plus cylinder 4 D. If one has confidence in his refraction, there is *no need to delay operation unduly*. While conditions are not yet ripe to act upon it, I really believe that the best interests of these patients, as a whole, would be served by early operation in all cases. I am certain there would be fewer useless eyes and more pairs of eyes with binocular vision. Provided always that mutilating tenotomies are not done.

My shortening can do no harm, so why not try to do good? *This practice seems more sensible than wait-*

ing till binocular, and possibly monocular, vision is lost and then trying to retrain those functions—usually without success.

Doctor McCool is to be envied his association with "general medical men and pediatricians who are so keenly alive to the importance of the subject" that they refer squinting children to him as soon as the condition is evident. This, to judge from our literature, is *not* the experience of most ophthalmologists.

There is no doubt but that our poor functional results in squints are due:

1. To the failure of the family medical adviser to appreciate the importance of getting these patients under expert care *as soon as the deviation shows itself.*

2. To the failure of mothers to carry out the prolonged and tedious alternate monocular occlusion necessary to save the sight in *each* eye.

3. To the inability to train the binocular function in young children.

4. To the lack of a method safe enough to permit early operative correction.

I feel that I have developed such a method.

RODERIC O'CONNOR, M. D.
San Francisco.

450 Sutter Street.

DEPARTMENT OF PUBLIC HEALTH

By W. M. DICKIE, Director

Epidemic Poliomyelitis Abating.—Epidemic poliomyelitis, which has been present in California during the summer months, has abated greatly and other states are now experiencing the same difficulties with this disease that California suffered during July and August. Poliomyelitis is now about half as prevalent in California as it was in July, when the epidemic reached its peak. New York, Ohio, Kansas and other states are now combating the increased prevalence of this disease and in some communities within those states drastic control measures are employed. In California, the use of stringent methods of control, such as closing schools, theaters and other meeting places, was discouraged, as such procedures are of no proven value in curbing the spread of the disease. The value of this policy is indicated in the abatement of the epidemic in this state without resort to the employment of drastic fear-provoking, ineffective methods of control. The following table shows the trend of epidemic poliomyelitis in California during the present year:

County	January to June 30	July	August	September first two weeks
Alameda	4	....	1	....
Colusa .....	....	....	1	....
Contra Costa	2	....	....	....
Fresno	8	3	4	5
Humboldt .....	....	....	....	3
Imperial	10	1	1	2
Kern	4	7	2	....
Kings	2	1	....	....
Los Angeles	190	342	138	57
Madera .....	....	....	1	1
Marin .....	....	2	2	....
Mariposa	1	....	....	....
Merced .....	....	....	....	1
Monterey	1	....	1	....
Orange	20	11	6	2
Placer .....	....	1	....	1
Riverside	15	15	9	....
Sacramento	2	1	....	....
San Bernardino	29	18	7	....
San Diego	9	12	7	3
San Francisco	6	9	25	19
San Joaquin .....	....	1	2	2
San Luis Obispo	1	1	....	3
San Mateo	2	1	1	1
Santa Barbara	3	13	7	4
Santa Clara	1	....	5	3
Santa Cruz .....	....	1	1	1
Sonoma	4	2	4	....
Stanislaus .....	....	....	....	1
Tehama	1	....	....	....
Tulare	2	5	1	....
Ventura .....	....	1	1	....
Outside	1	2	2	2
Totals	318	450	229	111

State Fair Exhibit.—The State Department of Public Health maintained an exhibit in the Educational Building at the State Fair in Sacramento. The display consisted entirely of animated charts and models illustrative of the trend of births and deaths in California. Literature upon public health subjects was distributed to all who expressed interest in the subject. Between 150,000 and 200,000 people visited the exhibit, the night fair drawing almost as many people as the daylight hours. Most of those who came during the day were residents of the rural districts and those who came at night were residents of Sacramento and cities within a radius of one hundred or more miles from the Capital.

Epidemic Among Horses.—Following the receipt of reports from the San Joaquin Valley that horses were dying of a disease resembling botulism, the State Department of Public Health made an investigation in order to determine if this epidemic among horses might constitute any sort of menace to the health of human beings. It was found that many horses in the San Joaquin Valley, from Modesto to Bakersfield, are suffering from an epidemic disease which is probably an encephalitis. There is no reason to believe that the outbreak is in any way a menace to the health of human beings. It is known to veterinary science as Borna Disease.

The symptoms of difficulty in swallowing, depression, muscular weakness and paralysis gave rise to the idea that the disease might be botulism, but it was determined that this disease is not involved. The Hooper Foundation for Medical Research cooperated with the State Department of Public Health in making this investigation and in reporting the findings.

San Diego Makes Record in Diphtheria.—The San Diego City Health Department reports no deaths from diphtheria this year (from January 1 to September 10). There have been only twenty cases reported during the same period. Dr. Alex M. Lesem, health officer, makes the following interesting report on diphtheria in his city during the period 1918-1930:

The number of diphtheria cases reported to the health department continues to show a marked decline. The first thirty-six weeks of the year 1930 reveal twenty cases, thirty-nine less than the same period of 1929. During the present year there were twenty-three out of thirty-six weeks in which no cases were reported. There were also eleven consecutive weeks with no cases. There were no deaths reported during the current year to date.

Immunization against diphtheria was inaugurated during the year 1926, and has proceeded continuously. An intensive campaign has been carried on this year, which has resulted in more immunizations than during any other year. The cases have dropped from 251 during 1926 to eighty-five during 1929 and only twenty to date for 1930.

MEDICO-LEGAL

Judge Samuel R. Blake of the Superior Court of the State of California, in and for the county of Los Angeles, in the case of

The People of the State of California on the Relation of Granville MacGowan, Plaintiff, vs. Medical Service Corporation, a Corporation, Defendant,

recently rendered a decision that should be of much interest to members of the California Medical Association.

Because of the importance of this particular decision a digest of Judge Blake's opinion, which recently came into the hands of the editor, is here printed.*

POINTS FOR DECISION

1. Two of the main questions involved are:

(a) Can a corporation practice medicine?

(b) Is the manner and method in which the defendant corporation is conducting its business, practicing medicine?

On the first proposition the court concludes that a corporation cannot practice medicine. A corporation may be formed for any purpose for which individuals may lawfully associate themselves.

The defendant's contention is that since doctors may lawfully associate themselves together to practice medicine, likewise it may do so in its corporate capacity as a corporation by employing as its agents qualified physicians and surgeons to do the work of the corporation.

The vice of this contention consists in its assumption that individuals may generally and as a matter of right associate themselves together for the practice of medicine; this assumption is fallacious since, under the laws of California individuals may not either singly or in an association engage in the practice of medicine without having a special license so to do, and hence individuals forming a corporation could not under our law gain any other or further right by the act of incorporation than lawfully possessed by either, singly or in the aggregate, without incorporation.

The corporate cannot, of course, as a corporation, pass the medical board examination and can only act through its agents. The right to practice medicine attaches to the individual and dies with him, and it cannot be made a subject of business sheltered under the cloak of corporation having marketable shares descendable under the laws of inheritance. All the directors of this corporation, or stockholders, may be licensed practitioners, but any time these directors or officers, by death or otherwise, may transfer their shares and it might be succeeded by laymen, none of whom possess the right to practice medicine.

Therefore, under the maxim that you cannot do indirectly, as in this case by the creation of a corporation, that which is directly prohibited by law; upon this proposition the great weight of authority in California and elsewhere is that a corporation cannot, as such, practice medicine.

IS THE MANNER AND METHOD UNDER WHICH THE DEFENDANT CORPORATION IS CONDUCTING ITS BUSINESS AMOUNTING TO PRACTICING MEDICINE?

The evidence shows that the defendant corporation is engaged in the business of conducting dispensaries throughout the city of Los Angeles, with its principal office located in the Pantages Building, scattered throughout the industrial district. There are six or seven stations where minor industrial injuries not requiring medical attention are treated. Each of these stations has a waiting room and room where treatment is administered. In each of the stations there is an operating table and instruments necessary to enable a physician to give first-aid treatments. These stations are classed as emergency hospitals and are maintained by the agents of the defendant corpora-

* At the time Judge Blake gave his opinion from the bench, the daily press, in substance, stated that Judge Blake's order dissolved the franchise of the Medical Service Corporation and perpetually enjoined that particular corporation from practicing medicine.

Of course, in a legal matter with such scope and ramifications, this decision is not apt to be the end of the story. The entire situation will continue to bear watching. In the meantime it is a pleasure to know that a verdict has been handed down from a Superior Court bench on some of the legal phases of this important problem which is concerned with the attempt of certain corporations to practice medicine.

It must be a gratification to all members of the California Medical Association to know that the effort and work of Dr. Granville MacGowan of Los Angeles had such a successful outcome.

tion. In each of the stations the defendant maintains one physician, licensed, and these doctors are employed by the corporation on a straight salary, and are paid a small bonus if the company makes a profit from his particular station. The evidence further shows that the corporation confines its activity to purely and entirely industrial cases. The defendant corporation has no nurses at its branches and the only nurse is at the main office. The doctors are at all times employed by the company and the physician and surgeon gives all his time to the defendant corporation. All of the doctors are required to report to a chief surgeon, Doctor Nelson, at the head office. The corporation makes a charge for the services rendered by the doctor whenever a case is closed. The doctor himself makes no charge and the doctors at various stations are not permitted to treat any private cases of their own, and only do the work of the corporation. This is a brief summary of the important facts of the case.

This unquestionably is a case of first impression in the State of California, being a proceeding by the Attorney General to cancel and annul the franchise of this defendant corporation for the reason that they have violated a law of the State of California and engaged in a business as a corporation which it is unlawful to do.

The court concludes that the acts enumerated and done by the defendant corporation constitute practicing a system of medicine, or mode of treating the sick and afflicted in this state, within the meaning of the Medical Practice Act, and, therefore, is in violation of law.

Several other important questions are involved, to wit:

1. Whether or not such a holding affects hospitals and charitable institutions now in existence which are corporations.

Clearly this rule would not in anywise affect hospitals and infirmaries which are not practicing medicine, but are independent of the practice of medicine and surgery, nor are most of those institutions profit-sharing institutions and practicing for profit, while the defendant corporation is, and there is no analogy between the present case and the case of hospitals or other private corporations.

2. The fact that the Workmen's Compensation Act compels all employers to furnish medical and surgical aid to the injured in the course of their employment does not offer any reason for a corporation to engage in the practice of medicine. It only requires that they furnish medical aid of a physician and surgeon, and it is not necessary to form a corporation to furnish a physician and surgeon for medical aid.

If, in the last analysis, corporations are allowed to practice medicine as a general proposition, it is the opening wedge to the commercialization of the practice of the learned profession of medicine, and permits the creeping in of many unethical and uncontrollable factors which the law has heretofore rigidly sought to avoid.

One of the main objections to allowing a corporation to practice medicine would be unquestionably the inability of the state to control the practice of medicine by a corporation as it does control it now under the Medical Practice Act, as each member of the profession comes directly under the Medical Practice Act and the corporation herein does not. Unprofessional conduct on behalf of the corporation could not be reached, such as aiding or betraying a professional secret, advertising, or offenses involving moral turpitude, and many others too numerous to mention.

Unquestionably, if the corporation does not come within the provisions of the Medical Practice Act, it would be immune from its penalties or provisions; therefore it is important to the welfare of the people of the State of California, and hence the importance of the prohibiting of a corporation from practicing

medicine as a corporation and engaging in that business through its agents for profit.

SAMUEL R. BLAKE, Judge.

Attorneys for plaintiff:

U. S. Webb, Attorney General,
Gibson, Dunn & Crutcher, and
Norman S. Sperry.

Attorneys for defendant:

Joe Crider, Jr.

TWENTY-FIVE YEARS AGO *

EXCERPTS FROM OUR STATE MEDICAL JOURNAL

Vol. III, No. 11, November 1905

From some editorial notes:

The Meeting Next Year.—The next annual session of the state society, to be held in San Francisco, April 17 to 19, 1906, will mark the beginning of the second fifty years of its existence. . . .

Collier's on Nostrums.—In its issue for October 7, *Collier's Weekly* began the series of articles by Mr. Adams, revealing the inside rottenness of the nostrum fraud, not only as affecting the general public, but also as it concerns the nostrums exploited to and through the medical profession. These articles should be read by every physician who takes the slightest interest in his profession or in professional decency. . . .

The Ones Enmeshed.—In this article Mr. Adams mentions a few of the rank nostrums which, through the medium of the dirty dollars they pay to medical journals for the purpose of aiding in defrauding the medical profession and the sick by means of advertisements, reading notices, and paid-for "original" articles, have been prominent in debauching the profession and enmeshing the medical press in this tight-drawn net of fraud. . . .

Peptomangan.—We take great pleasure in publishing elsewhere in this issue of the journal some matter from the *Journal of the American Medical Association* concerning the "proprietary" known as "_____—" —but not "good." The garbled and distorted extract from the report of the Porto Rico Commission has been appearing with regularity in the various representatives of the subsidized medical press of this country, and doubtless a number of honest and confiding physicians have been fooled into believing it. What shall we say of a manufacturer whose love for the medical profession is so great that he will sink to this sort of misrepresentation (to use no harsher word)? . . .

. . . The dirty money of the unscrupulous manufacturer will do almost anything; it will buy any amount of space in so-called medical journals, and it will enable the spender to present any old lie disguised as plausible truth to the medical profession.

Doctor McCormack's Addresses on Organization.— . . . In other professions the members are much more harmonious; they dwell together in charity. Why is this? . . . Doctors but seldom come in contact with each other in the discharge of their professional work. Each one has a certain following which considers him about the best of his kind, and in due course he begins to be possessed of the same idea and to regard his fellow practitioners as rather below him. . . .

. . . Only by coming into personal contact at frequent intervals can medical men really know and appreciate each other, and as their occupation does not bring them together in the regular performance of their professional duties, this end should be secured by frequently meeting together in societies. . . .

* This column strives to mirror the work and aims of colleagues who bore the brunt of state society work some twenty-five years ago. It is hoped that such presentation will be of interest to both old and recent members.

... In the legal profession, we almost never see serious dissension. . . . A lawyer's work brings him constantly into contact and association with other lawyers; his whole life work is a postgraduate education; every trial is a clinic; his education is of necessity and by virtue of the very nature of his calling, constantly uppermost, even though unconsciously so. The lawyer meets his kind every day that he practices his profession; he learns to appreciate his own weaknesses and other men's strength; his mind broadens from day to day and from year to year; he does not lead an isolated life. . . .

From an article on "A Case of Pseudohypertrophic Muscular Dystrophy" by Langley Porter, M. D., San Francisco.

D. M., aged seven years eight months, was brought to me six months ago on account of weakness in the legs, and bronchitis. . . .

From an article on "Anesthesia in Ear, Throat, and Nose Operations" by William A. Martin, M.D., San Francisco.

The relative safety of the various anesthetics used in the different operations on adenoids and tonsils is one almost impossible to arrive at. In the first place, all anesthetics are dangerous unless administered by a safe man; and, furthermore, all anesthetics are dangerous unless pure and fresh. . . .

CALIFORNIA BOARD OF MEDICAL EXAMINERS

By CHARLES B. PINKHAM, M. D.
Secretary of the Board

News Items, November 1930

According to reports, Galen F. Maher, licensed chiropractor, was recently arrested in Santa Rosa on a charge of violation of the Medical Practice Act, investigation report stating that he is alleged to have been advertising that he would remove moles, warts, skin cancers, etc., and that with electricity he desiccated the tonsils of the complaining witness. It is reported his defense is that he may practice anything taught in chiropractic schools and colleges.

"Sixty-three American doctors were ordered expelled from Budapest Hospital today in a resolution adopted by the City Council in compliance with a demand from the radical press that they be forbidden to practice in Hungary. The doctors have been studying in the largest hospitals here under world-famous surgeons. In all cases the Americans came for special work and practice in surgery here, where patients are more numerous and operations may be performed with fewer restrictions than in most American cities. . . ." (Consolidated Press dispatch dated Budapest, October 3, printed in the San Francisco *Chronicle*, October 4, 1930).

"For the second time in two years the State Board of Medical Examiners' net for alleged quack doctors has captured 'Dr.' Howard L. Musick, self-claimed 'wonder man' and manufacturer of a patent remedy which he asserts will cure all ills. He was arrested yesterday at his 'laboratory' by Special Agent William A. Byrne of the medical board, after Policewoman Mary Ross and Special Investigator Helen Jones, posing as patients, declared he had diagnosed their 'ills' and prescribed potions of his 'cure-all' as a remedy. . . . Musick was arrested in the midst of yesterday afternoon's consultation with patients. Fully thirty patients—most of them aged—were awaiting audience with him when the officers arrived. . . . Musick was arrested on similar charges two years ago, but was later acquitted by a jury. It was declared at his trial he had made more than \$3,000,000

from the sale of his remedy over a period of five years. . . ." (Los Angeles *Examiner*, September 18, 1930). The investigation report relates that in checking up on the business done by him (Musick) it was found that "in the past year Musick had purchased from the Western Drug Company 2,850,000 capsules and 8000 pounds of material, which included 2400 pounds of sulphur, 1900 pounds of aloes, 2700 pounds of cream of tartar, and 1000 pounds miscellaneous. As Musick sells twenty capsules for \$1, it is easy to figure the amount that he has taken in in one year, which, figuring working days only, amounts to \$450 per day."

"Charged with violation of the Medical Practice Act by professing to treat tuberculosis without a medical license, Dr. John P. Shepherd of the Hillside Sanitarium was arrested here today by J. W. Davidson, Special Agent of the State Board of Medical Examiners. According to Davidson, Shepherd claims to have been graduated from the University of Toronto and Jefferson Medical College, but a search of the records of these two institutions has failed to substantiate these claims. . . . Shepherd was arrested several months ago on a similar charge preferred by Davidson. He paid a \$250 fine at that time. . . ." (Santa Rosa *Republican*, September 22, 1930). John P. Shepherd testified under oath before the Board of Medical Examiners at its meeting held in San Francisco July 8, 1930, and in response to the question as to the medical college from which he graduated, replied: "I think that was from the University of Toronto." He was then asked the question as to whether it was not usually customary for a man who graduated from a medical school to know when and where he graduated, to which Shepherd answered, "I suppose so, yes." The University of Toronto relates they find no record of such a man having graduated. The State of Indiana reports that a John Shepherd was licensed in that state many years ago on the basis of having practiced in Indiana before the Medical Practice Act was passed and they have no record that Shepherd was then the possessor of a medical diploma. It is further related they have no means of knowing whether John P. Shepherd of Santa Rosa is the same individual licensed to practice in Indiana. Special Agent Davidson reported that when he asked Shepherd if he (Davidson) might see Shepherd's Indiana license, Davidson was informed that Shepherd's attorney in Sacramento had it, but he could not think of the name of his attorney. The American Medical Association has furnished information relative to the activities of a John P. Shepherd, formerly located in Chicago and Arizona, they having no record of his having attended a medical school. Information from Indiana relates the difficulties in 1901 of a Dr. John Shepherd, then reported as assistant postmaster at New Brunswick, Boone County, Indiana.

"Dr. William C. Fiske, seventy, Hermosa Beach physician, charged in a grand jury indictment with murder, is scheduled to return to Superior Judge Walton Wood's court to enter a plea to the charge next Tuesday. The aged physician is held responsible for the death of Vera Nelson, twenty-two, who assertedly died in his office after an illegal operation. Judge Wood ruled that the defendant be admitted to \$10,000 bail when he came before the court for arraignment" (Los Angeles *Record*, October 3, 1930).

Lou Wing, alias Lou Sun, Chinese herb doctor, may not peddle his "cures" through Uncle Sam's mails. Federal chemists who have examined herbs dispensed by Lou Wing found no curative medicine. Word to this effect was received yesterday by the State Board of Medical Examiners (San Francisco *Examiner*, September 16, 1930). This herb company is known to the Investigation Department of the Board of Medical Examiners as Lau Yit Cho, alias Low Sun, who on July 27, 1927, pleaded guilty in San Francisco and paid a fine of \$300 for violation of the Medical Practice Act.

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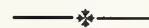
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TRUTH ABOUT MEDICINES

(Continued from Page 30)

of arsenic. It found Polyglandalol to resemble in composition the so-called aphrodisiac pill and Polyglandine to resemble somewhat one of the numerous so-called iron- tonic pills. The chief indictment against the business run by Ellenbaum et al. is the suggestiveness and general salaciousness of the advertising, together with the wholly unwarranted claims leading sexual hypochondriacs to believe that they can be rejuvenated by the various named nostrums put out by the equally various named concerns.—*Journal of the American Medical Association*, September 13, 1930, p. 814.

The Galvano Necklace Fraud.—On July 11, 1916, one branch of the United States Government—the Patent Office—issued a patent on a preposterous piece of unscientific hokum on the ground that it was a "new and useful improvement in appliances for

(Continued on Page 40)

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TRUTH ABOUT MEDICINES

(Continued from Page 37)

treating goiter." On August 14, 1930, another branch of the government—the Post Office Department—declared the same device worthless and its method of exploitation a fraud and debarred it from the mails. The device was known as the "Galvano Necklace" or "Galvano Goiter Appliance"; it was sold by the Cosmas Pharmacal Company of Watertown, Wisconsin. The Galvano Necklace consists of glass beads between which are placed alternately small zinc and copper disks. Both the disks and beads are strung on a piece of fine wire. The alleged purpose of the "invention" is that of "generating galvanic currents in contact with the skin in the presence of mercurous iodid and calcium chlorid." With the necklace came an ointment containing mercurous iodid and calcium

chlorid, which was to be applied to the skin of the neck, and the necklace then hung so that that part carrying the zinc and copper disks would come in contact with the anointed skin. In addition to the necklace the Cosmas Company has been sending out, in addition to the "ointment," one-half grain potassium iodid tablets. The danger of allowing people with hyperthyroidism to dose themselves with potassium iodid unknowingly, is not obvious to the public, although it is to physicians. When the necklace was tested in the Bureau of Standards it failed to disclose any electric current. A fraud order was issued by the Postmaster-General against the Cosmas Pharmacal Company, W. Werner, and their officers and agents, as such.—*Journal of the American Medical Association*, September 20, 1930, p. 882.

More Misbranded Nostrums.—The following products have been the subject of prosecution by the

(Continued on Page 44)



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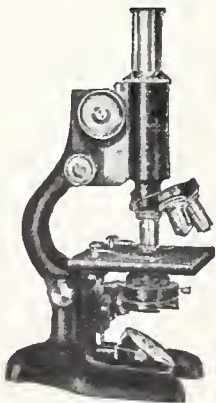
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TRUTH ABOUT MEDICINES

(Continued from Page 40)

Food, Drug, and Insecticide Administration of the United States Department of Agriculture which enforces the Federal Food and Drugs Act: Hollie's Reducing Crackers (Cubbison Cracker Company, Inc.), essentially a brown wheat cracker containing senna and mineral oil. Cold Fix Tablets (Cold Fix Company), tablets containing about one grain acetanilid

(each) with some cinchonin sulphate, aloin, and camphor. Campho-Quinin (Gorgon Remedy Company), tablets consisting essentially of acetanilid with a small amount of a quinin salt, camphor, and an extract of a laxative plant drug. Fluin (The Fluin Company), consisting essentially of camphor, amidopyrin, and a compound with a hexamethylenetetramin nucleus. Ampco Laxative Cold Tablets (American Drug Sales

(Continued on Page 47)

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TRUTH ABOUT MEDICINES

(Continued from Page 44)

Company), containing one grain of acetanilid, each, together with red pepper and an extract of a laxative plant drug. Forkola Jell (Bacorn Company), an ointment consisting essentially of a petrolatum base containing benzoin and oils of peppermint, eucalyptus, with camphor, menthol, turpentine oil, and oil of wintergreen. Casco Cascara Bromide Quinine Laxative Tablets (Casco Company), containing acetanilid, phenolphthalein, quinin, extracts of plant drugs, including a laxative drug and a trace of bromid. Yago One Day Cold Tablets (L. J. Barnett Company), consisting essentially of acetanilid, a quinin compound, resins, aloin, extracts of plant drugs, including a laxative drug and traces of mydriatic and ipecac alkaloids.—*Journal of the American Medical Association*, September 20, 1930, p. 882.

Antipneumococcus Serum Combining Types I and II Pneumococci, and Refined and Concentrated Antipneumococcic Serum (Lederle) Not Acceptable for New and Nonofficial Remedies.—The Council on Pharmacy and Chemistry reports that it has accepted for New and Nonofficial Remedies preparations of antipneumococcic serum for Type I pneumococcus infection and that at present this is the only type in which the efficacy of serum has been sufficiently established to warrant general use. The Council reports that there is some evidence that Type II serum concentrated by the Felton method is of service if given early and in large doses, but that there are other reports which indicate inefficacy. In consideration of the present available evidence, the Council declared all serum preparations combining Type I and Type II pneumococci, including Refined and Concentrated Antipneumococcic Serum (Lederle) unacceptable for New and Nonofficial Remedies.—*Journal of the American Medical Association*, September 27, 1930, p. 935.

Stevens Consumption Cure.—In 1904 C. H. Stevens was selling "Sacco" in Capetown, South Africa. When clearing \$15,000 a year, he got into the courts and found it expedient to leave Capetown. In 1906 Stevens was in Johannesburg, trading as the "South African Institute of Medicine" and selling his stuff as "Lungsava"; was twice convicted of violating the law and left for England. In 1907 Stevens was in London selling his "cure" and in 1910 was declared by the courts to be guilty of "intentional and well-considered fraud," and his "cure" denounced as "nothing but quack remedies." In 1908 the British Medical Association denounced Stevens as a quack and declared his nostrum worthless. In 1915 Stevens' "cure" appeared in the United States under the name of "U. C. Extract," exploited by the Umckaloabo Chemical Company of New York City. In 1919 Stevens attempted to exploit tuberculous Canadian soldiers who have acquired the disease in the service of their country. The post office authorities investigated the Stevens business and have issued a fraud order against Charles H. Stevens of Longdon, England.—*Journal of the American Medical Association*, September 27, 1930, p. 951.

Too Busy to Attend Medical Meetings.—Beware of the physician who is "too busy" to attend medical meetings, especially those of his own county medical society. All kinds of excuses are offered by some physicians as to "why" they seldom attend medical meetings, but the most frequently heard is that they are "too busy." The physician who is so busy that he does not have time to associate with his colleagues, had better check up on himself and find out what's wrong. Who is it that writes your medical textbooks? Who is it that contributes the important articles to current medical literature? Who is it that you call in consultation when you have the opportunity to secure the best medical talent?

(Continued on Page 56)

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"The director of an approved clinical laboratory should be a graduate of an acceptable college or university of recognized standing, indicating proper educational attainments. He shall have specialized in clinical pathology, bacteriology, pathology, chemistry or other allied subjects, for at least three years. He must be a man of good standing in his profession."

"The director shall be on full time, or have definite hours of attendance, devoting the major part of his time to the supervision of the laboratory work."

"The director may make diagnoses only when he is a licensed graduate of medicine, has specialized in clinical pathology for at least three years, is reasonably familiar with the manifestation of disease in the patient, and knows laboratory work sufficiently well to direct and supervise reports."

"The director may have assistants, responsible to him. All their reports, bacteriologic, hematologic, biochemical, serologic and pathologic should be made to the director."

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"Indexed records of all examinations should be kept. Every specimen submitted to the laboratory should have appended pertinent clinical data."

PUBLICITY

"Publicity of an approved laboratory should be directed only to physicians either through bulletins or through recognized technical journals, and should be limited to statements of fact, as the name, address, telephone number, names and titles of the director, and other responsible personnel, fields of work covered, office hours, directions for sending specimens, etc., and should not contain misleading statements. Only the names of those rendering regular service to the laboratory should appear on letterheads or other form of publicity."

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" * * There should be no dividing of fees or rebating between the laboratory or its director and any physician, corporate body or group. * * *"*

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CONTENTS AND SUBJECT INDEX

SPECIAL ARTICLES:

The County Medical Society—A Business Organization. By Lyell C. Kinney, San Diego.....849

Angina and Other Precordial Pain—Their Differentiation. By Eugene S. Kilgore, San Francisco.....853
Discussion by William Dock, San Francisco; T. Homer Coffen, Portland, Oregon; Donald J. Frick, Los Angeles.

Glucose Per Rectum—Evidence of Non-Absorbability. By Bertnard Smith, Los Angeles.....857
Discussion by Clarence G. Toland, Los Angeles; Robertson Ward, San Francisco.

Obstruction Following Gastroenterostomy—Its Mechanical Factors. By Fred R. Fairchild, Woodland.....860
Discussion by Ernst Gebrels, San Francisco; Robertson Ward, San Francisco.

Uroselectan—Reactions Accompanying Its Practical Application. By George W. Hartman, San Francisco.....867

The California State Mental Hygiene Survey. By Glenn Myers, Los Angeles 872

The Treatment of Bone Tumors. By Edwin I. Bartlett, San Francisco.....877
Discussion by Arthur U. Desjardins, Rochester, Minnesota; John C. Wilson, Los Angeles; C. L. Connor, San Francisco.

Differentiation Between Yaws and Syphilis. By B. C-N. O'Reilly, San Francisco 881
Discussion by Fred R. Fairchild, Woodland; Alfred C. Reed, San Francisco.

The Extra Academic Origin of Medical Specialties. (Part I.) The Lure of Medical History. By LeRoy Crummer, Los Angeles.....884

CLINICAL NOTES AND CASE REPORTS:

Treatment of Barbitol Poisoning with Glucose. By George H. Sanderson, Stockton 887

Cerebral Symptoms in Hypertension. By William H. Barrow, San Diego.....887
University of California Hospital—Medical Division.....888

BEDSIDE MEDICINE:

Anemia 890
Discussion by John Martin Askey, Los Angeles; Stacy R. Mettler, San Francisco; Harry Wyckoff, San Francisco.

EDITORIALS:

The California Legislature and Some Public Health Problems.....893

The County Medical Society—A Business Organization.....894

Federal and State Foods and Drugs Acts—Influence of Advertising Methods Thereon 895

Optometry in a Southern California University 896

A California Mental Hygiene Survey.....897

MEDICINE TODAY:

Alleged Superiority of Normal Human Serum Over Convalescent Serum in Poliomyelitis. By W. H. Manwaring, Stanford University... 898

The Excretion of Analgesics and Hypnotics. By C. D. Leake, San Francisco..... 898

Isometric Contraction of Skeletal Muscle—Introduction. By John Field, Stanford University.. 899

Cardiac Diagnosis. By Louis Baltimore, Los Angeles 900

Trichomonas Vaginalis Vaginitis. By T. Floyd Bell, Oakland..... 901

STATE MEDICAL ASSOCIATIONS:

California Medical Association.....902

Woman's Auxiliary of the California Medical Association.....909

Nevada State Medical Association.....910

Utah State Medical Association.....911

MISCELLANY:

News 912

Much in Little.....913

In Lighter (?) Vein 913

Some Optometric Trends 913

A Public Health Campaign.....914

California Department of Professional Standards 915

Twenty-Five Years Ago 917

Department of Public Health.....919

California Board of Medical Examiners.....920
Index to Volume XXXIII, California and Western Medicine.....Adv. page 57

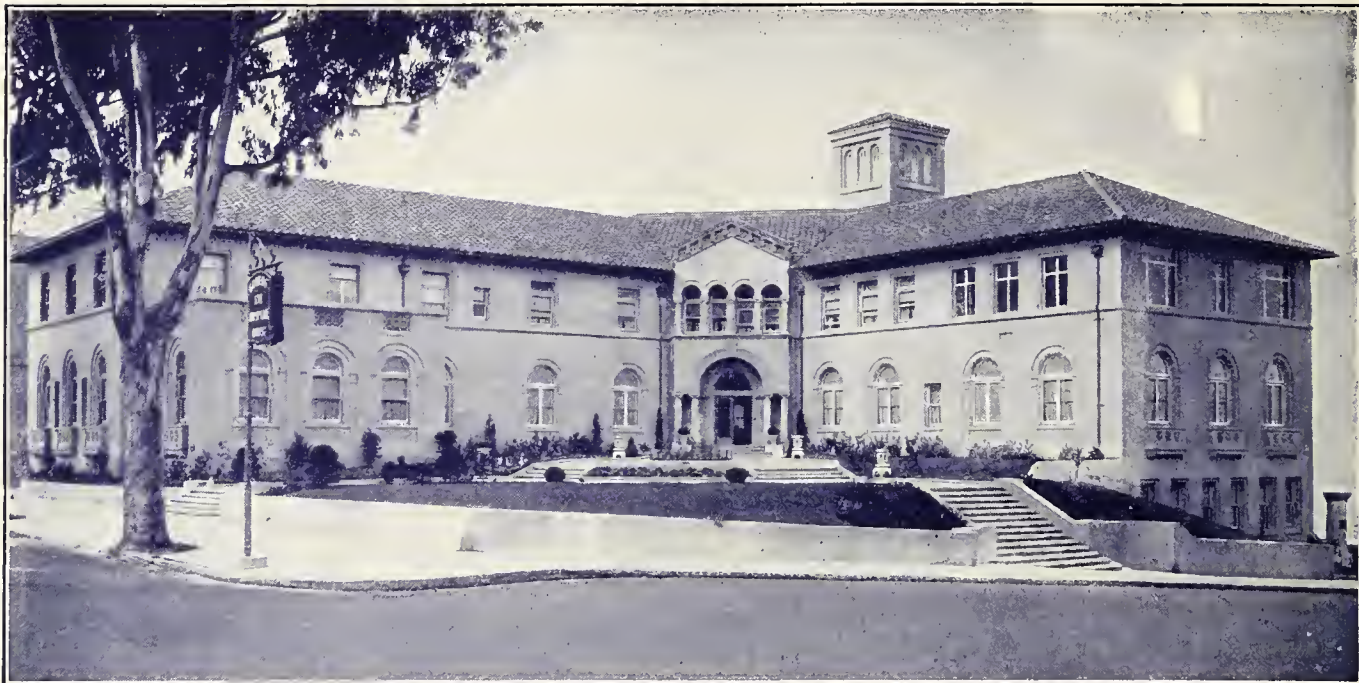
Directory of Officers, Sections, County Units, and Woman's Auxiliary of the California Medical Association.....
.....Adv. page 2

Book Reviews.....Adv. page 11

Truth About Medicines.....Adv. page 23

ADVERTISEMENTS—INDEX:

.....Adv. page 8



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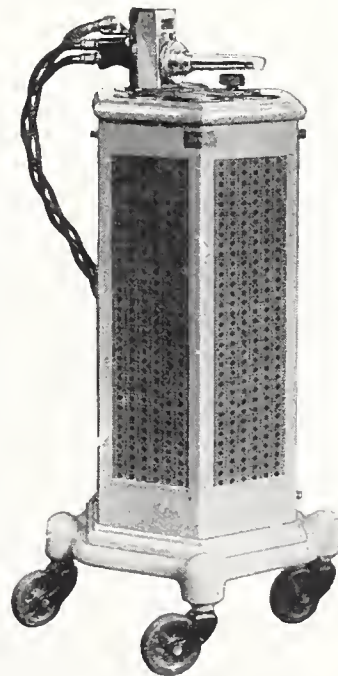
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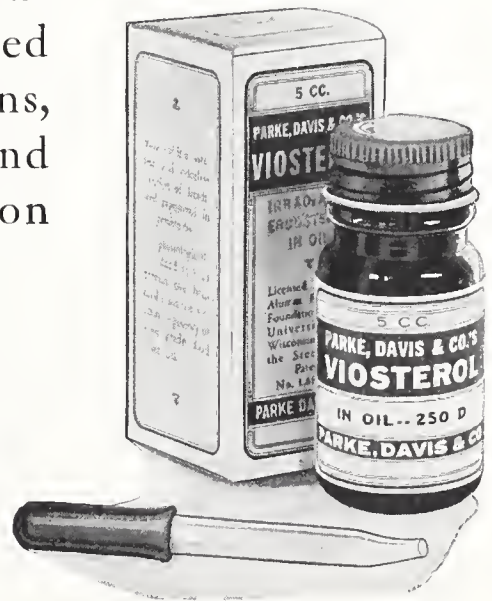
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	Page		Page		Page
Alexander Sanitarium	17	Guardian Life Insurance Com-	30	Podesta and Baldocchi.....	10
Aloe Co., A. S.....	41	pany, The		Post Graduate Instruction	9
Alum Rock Sanatorium.....	19	Gunn, Herbert, Stool Examina-	24	Post Graduate Hospital and	
American Surgical Sales Co.,		tion Laboratory		Medical School	9
Ltd., The	33	Guth, C. Rodolph, Clinical Lab-	10	Post Graduate School of Sur-	
Approved Clinical Laboratories..	53	oratory		gical Technique, Inc.	9
Baker, W. C.	51	Hexol, Inc.	20	Pottenger Sanatorium	39
Bamford, L.	36	Hill-Young School of Corrective		Pure Maple Syrup	36
Banning Sanatorium	46	Speech	24	Purity Spring Water Co.	14
Barr, Harry C.....	22	Hittenberger Co., C. H.....	10		
Barry Co., The James H.....	54	Hoffman, La Roche, Inc.....	13	Rainier Brewing Co.....	44
Bausch & Lomb Optical Co.....	42	Holland-Rantos Co., Inc.....	36	Riggs Optical Company.....	31
Benjamin & Rackerby.....	33	Hospitals and Sanatoriums.....	6		
Benjamin, M. J.....	45	Hynson, Westcott & Dunning,	39	Saint Francis Hospital.....	14
Bittleston Collection Agency,		Inc.		San Francisco Ladies' Protection	
Inc.	44	Johnston-Wickett Clinic	31	and Relief Society, The.....	15
Broemmel's Prescription Phar-		Joslin's Sanatorium.....	40	Scherer Co., R. L.....	29
macies	3	Knox Gelatine Laboratories.....	25	Scripps Metabolic Clinic and	
Brown Press	9			Memorial Hospital	18
Bush Electric Corporation.....	1			Sharp & Dohme.....	34
				Shasta Water Co., The.....	22
California Lima Bean Growers'		Laboratory Products Co.....	3 Cover	Shumate's Prescription Phar-	
Association	39	Las Encinas Sanitarium.....	17	macies	24
California Optical Co.....	30	Lederle Laboratories, Inc.....	23	Soiland, Albert (Radiological	
California Sanatorium	36	Lengfeld's Pharmacy	24	Clinic)	31
Calso Water Co.....	48	Lilly & Company, Eli.....	32	Southern Sierras Sanatorium.....	37
Camp & Co., S. H.....	20	Lister Bros., Inc.	15	Special Graduate Course in	
Canyon Sanatorium	18	Livermore Sanitarium	27	Proctology	22
Carel Laboratories	11			Squibb & Sons, E. R.....	26
Certified Laboratory Products....	46	Maltbie Chemical Co., The.....	28	Stacey, J. W., Medical Books....	11
Charles B. Towns Hospital.....	47	Maltine Company, The.....	5	St. Joseph's Hospital.....	40
Children's Hospital	41	Mead Johnson & Co.....	21	St. Luke's Hospital.....	23
Clark-Gandion Co., Inc.....	14	Medical Protective Company	38	St. Mary's Hospital.....	29
Classified Advertisements.....	10	Medico-Dental Finance Corp.....	48	Storm Binder and Abdominal	
Colfax School for the Tuber-		Merck & Co., Inc.....	49	Supporter	41
culous	55	Merrell-Soule Co., Inc.....	50	Sugar Institute, The.....	16
Compton Sanitarium and Las		Monrovia Clinic	44	Sugarman Clinical Laboratory....	28
Campanas Hospital	24				
Cutter Laboratory	4 Cover	National Ice and Cold Storage			
		Company	27	Towns Hospital, Charles B.....	47
Dairy Delivery Co.....	35	New York Polyclinic Medical		Trainer-Parsons Optical Co.....	35
Dante Sanatorium	4 Cover	School and Hospital.....	9	Tuberculosis Seal, 1930	12
Dewar & Hare Electric Co.....	42	New York Post Graduate Med-		Twin Pines	42
Doctors' Business Bureau.....	19	ical School and Hospital	9		
Dry Milk Co., The.....	52	Nichols Nasal Syphon.....	37	United States Fidelity & Guar-	
		Nonspi Company	40	anty Company	35
Four Fifty Sutter.....	36	Oaks Sanitarium	56		
Franklin Hospital	45	Officers of the California Med-		Vitalait Laboratory	14
Furscott, Hazel E.....	24	ical Association	2-4	Wallace, Sidney J.....	37
		Officers of Miscellaneous Med-		Walters Surgical Company	15
Grace Deere Velie Metabolic		ical Associations	6	Wedekind Co., Frank F.....	47
Clinic, The	43			Wilson Laboratories	51
Graduate School of Medicine,		Park Sanitarium	24		
Tulane University of La.	9	Parke, Davis & Co.....	7		
Greens' Eye Hospital.....	2 Cover				

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Mental Aspects of Stammering. By C. S. Bluemel, M. A., M. D., L. R. C. P. (London), M. R. C. S. (Eng.), Clinical Instructor in Neurology at the University of Colorado School of Medicine. Neurologist on the attending staffs of the Children's Hospital, the Denver Orphans' Home, and St. Luke's Hospital, Denver. Cloth. Pp. 152. Illustrated. Price, \$2.50. Baltimore: The Williams & Wilkins Company, 1930.

Primer on Fractures. Prepared by the Coöperative Committee on Fractures. Under auspices of Section on Surgery, General and Abdominal and Section on Orthopedic Surgery in coöperation with Department of Scientific Exhibit of the American Medical Association. Cloth. Pp. 55, illustrated. Chicago: American Medical Association, 1930.

Birth, Stillbirth, and Infant Mortality Statistics for the Birth Registration Area of the United States. 1928. Fourteenth Annual Report. Paper. Pp. 319. Price 55 cents. Washington: United States Government Printing Office, 1930.

A Text-Book of Medicine. Edited by Russell L. Cecil, A. B., M. D., Sc. D., Assistant Professor of Clinical Medicine in Cornell University; Assistant Visiting Physician in Bellevue Hospital, New York City, and Associate Editor for Diseases of the Nervous System, Foster Kennedy, M. D., F. R. S. E., Professor of Neurology in Cornell University; Head of Neurological Department, Bellevue Hospital, New York City. Second edition, revised and entirely reset. Cloth. Pp. 1592. Price, \$9. Philadelphia and London: W. B. Saunders Company, 1930.

Legal Medicine and Toxicology. By Ralph W. Webster, M. D., Ph. D., late Clinical Professor of Medicine (Medical Jurisprudence) in Rush Medical College, University of Chicago, Chicago. Cloth. Pp. 862, illustrated. Price, \$8.50. Philadelphia and London: W. B. Saunders Company, 1930.

A Text-Book of Gynecology. By Arthur H. Curtis, M. D., Professor and Head of the Department of Obstetrics and Gynecology, Northwestern University Medical School; Chief of the Gynecological Service, Passavant Memorial Hospital, Chicago. Cloth. Pp. 380, with 222 original illustrations. Price, \$5. Philadelphia and London: W. B. Saunders Company, 1930.

The Rockefeller Foundation. Annual Report, 1929. Paper. Pp. 402, illustrated. New York: The Rockefeller Foundation, 1930.

A Synopsis of Medicine. By Henry Letheby Tidy, M. A., M. D., B. Ch., F. R. C. P., Physician to St. Thomas' Hospital; Consulting Physician to the Royal Northern Hospital, London. Fifth edition, revised and enlarged. Cloth. Pp. 1032. Price, \$6 net. New York: William Wood & Company, 1930.

The Treatment of Children's Diseases. With Special Formulas and Drugs for Childhood and a Short Diagnostic Summary of each Clinical Picture. By Prof. Dr. F. Lust, Director of the Children's Hospital, Karlsruhe. Authorized Translation of the Sixth German Edition with Additions by Sandor A. Levinsohn, M. D., Associate Pediatrician to the Barnert Hospital, Paterson, N. J. Cloth. Pp. 513. Price \$8. Philadelphia and London: J. B. Lippincott Company 1930.

Nursing Mental and Nervous Diseases. From the Viewpoints of Biology, Psychology and Neurology. A Text-book for use in Schools for the Training of Nurses. By Albert Coulson Buckley, M. D., Medical Superintendent, Friends Hospital, Frankford; Associate Professor of Psychiatry Graduate School of Medicine, University of Pennsylvania. Second Edition, Revised. Cloth. Pp. 312, with 57 illustrations. Price, \$3. Philadelphia and London: J. B. Lippincott Company, 1930.

A Text-Book of Practical Therapeutics. With Especial Reference to the Application of Remedial Measures to Disease and their Employment upon a Rational Basis. By Hobart Amory Hare, B. Sc., M. D., LL. D., Professor of Therapeutics, Materia Medica and Diagnosis in the Jefferson Medical College of Philadelphia; Physician to the Jefferson Medical College. Twenty-first edition. Cloth. largely, thoroughly revised and largely rewritten. Cloth. Pp. 1104, illustrated with 145 engravings and 6 plates. Price, \$7.50 net. Philadelphia: Lea & Febiger, 1930.

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Effective Health Programs Against Tuberculosis



ACCORDING to a survey made by the U. S. Bureau of Labor Statistics a few years ago, two per cent of the American population is sick at any given time. The cost of this sickness aggregates the total of more than two billion dollars every year.

Since this survey, another made by a life insurance company shows that approximately eighty dollars per year is spent by each wage earner's family as the cost of sickness. This amount would not seem to be excessive—if it could be safely assumed that eighty dollars would cover the cost of all sickness from which the family might suffer. Unfortunately, no family can arbitrarily fix any given sum to be spent. Ill health and its attendant medical attention may not be the only items to make inroads upon the family's "sick budget." A large dental job may present itself; a major operation may suddenly be required, or a contagious disease may infect some or all of the family—then where does the eighty dollar budget come in? An average of eighty dollars for a sick budget represents a combination of larger and smaller amounts that vary from next to nothing to thousands of dollars per year. So long as sickness expenditures do not exceed the eighty dollars, so long can the budget hold its own. When it exceeds that amount trouble be-

gins—for that family. They are either forced to go into debt, or accept charity. The latter is something nobody cares to do, so it often happens that the family resorts to quackery, patent medicines or do without medical attention entirely.

Tuberculosis, alone, is responsible for a death rate that is from eight to twelve times higher among certain industrial workers than it is among farmers, for example. As menacing as these figures sound—and, in reality are—the tuberculosis death rate has been declining since those statistics were compiled a few years ago. It is still altogether too high, (79 out of every 100,000 persons) and tuberculosis still kills more persons between eighteen and forty than any other disease. The rate has been cut in half in the last twenty years. It is not too much to say that educational health programs that are made avail-

able by tuberculosis associations have had considerable to do with this decline. Neither is it too much to add that the little Christmas seal that appears every holiday season has played its part in proving that tuberculosis is preventable. The money derived from its sale makes it possible to present effective health programs; to establish clinics and especially to help maintain summer camps for children who will become the industrial workers of tomorrow.



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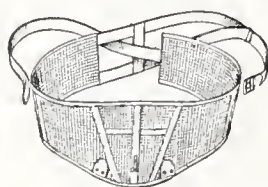


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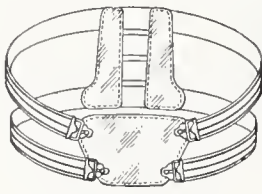
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BOOK REVIEWS

Collected Papers of the Mayo Clinic and Mayo Foundation. Edited by Mrs. M. H. Mellish, Richard M. Hewitt and Mildred A. Felker. Pp. 1197. Illustrated. Vol. 21, published May 1930. Philadelphia and London: W. B. Saunders Company. 1930. Price, \$13.00.

It is an easy matter to review a book written by one author on one subject, but when it comes to reviewing a book that deals with almost all the different phases in the entire field of medicine, written by many authors, one feels at a loss as to just where to begin and when to end.

The publishers make the statement in their foreword that this volume is compiled in such a way as to be of the most service to the general practitioner, diagnostician and general surgeon.

After reading the entire book through carefully, it gives me the impression that it is more for the research man, the statistician, the physiologist and specialist. It is not the Mayo Clinic volume of old that served the general practitioner, the diagnostician and the general surgeon so well when he was in trouble. The volume



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certainly has a definite place in a well balanced library of a real doctor, but in my opinion it does not have the practical value of the earlier volumes of the Mayo Clinic as a reference book. Published in an institution with such wealth of brains, training and material, it certainly should be a book that would be the last word on practical medicine and surgery, so that it might be indispensable to the doctor treating the great masses of suffering humanity.

Many of the earlier volumes of the Mayo Clinic are wonderful as reference books in diagnosis and surgical treatment. The 1929 volume, rather than being a reference book, is too much an index to references. Many of the abstracts are useless as far as giving the diagnostician, general practitioner or general surgeon any help.

Perhaps I am old-fashioned, but this volume compares with some of the earlier volumes as our modernistic art compares with the work of a Raphael. It is my sincere hope that in 1930 the collected papers of the Mayo Clinic and the Mayo Foundation will be in two volumes—one for the general practitioner, clinician and general surgeon and diagnostician, and one for the research man, statistician, physiologist and specialist.

What the general practitioner, diagnostician and general surgeon is interested in (and for the good of his patients) is how to make a correct diagnosis, and how to treat his patient after he has been correctly diagnosed, and if his patient happens to need surgical care, he wants also to know how to properly prepare him for operation and how to treat him postoperatively.

It is my opinion that this volume does not stress very much on diagnosis, surgical technic, preoperative care of the patient; the very field of medicine in which such marvelous strides have been made in the last five years.

A. H. R.

The Basis of Epilepsy. By Edward A. Tracy. Pp. 92. Illustrated. Boston: Richard G. Badger, The Graham Press, 1930. Price, \$2.50.

This monograph is divided into three sections.

The first section reports an investigation of chronic epilepsy, major mal cases, made chiefly from 1916 to 1918. This investigation revealed the white spots of epilepsy and the various abnormalities of the vasoconstriction reflexes. These abnormalities appear to be the clinical manifestations of the pathology of the sympathetic in epilepsy previously discovered and described by Echeverria.

The second section treats of incipient epilepsy, the important phase of the disease which is often present without being recognized until convulsions occur. This investigation began in 1918.

The third section presents: (a) The vasomotor reflexes of the skin with a method for testing and recording them. (b) A method of diagnosing epilepsy between the seizures. (c) Supplementary notes on the white spots of epilepsy—1. Ordinary; 2. "New-born." (d) Epilepsy a disease entity.

This small book is profusely illustrated with photographs which, however, do not particularly well demonstrate the points which the author wishes to emphasize. It is an interesting attempt to bring the problem of epilepsy to a more definite physiological basis and will undoubtedly be of genuine interest and importance to those concerned in the care and management of this syndrome.

The subject matter is, however, rather too detailed and technical to be of general interest, and at the present time, with the exception of the outline of treatment for incipient epilepsy with colloidal oenanthe, has a limited practical value.

It is, however, this type of scientific study and accurate evaluation of physiological and clinical data which will eventually clarify the problem of epilepsy.

M. G. Jr.

(Continued on Page 17)



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BOOK REVIEWS

(Continued from Page 15)

Medical and Surgical Year Book Physicians' Hospital of Plattsburgh. Comprising Wednesday afternoon invitation lectures, papers of the cardiac round table; the first Beaumont lecture and collected papers by the staff. Pp. 322. Illustrated. The William H. Minor Foundation, Plattsburgh. 1930.

This volume, the first to be published from the Physicians' Hospital of Plattsburgh, marks the beginning of a new summer course for medical students between their third and fourth years, in diseases of the heart and kidneys. The first part of the book is devoted to a series of seven invitational lectures given as part of this course. The subjects discussed are: Serum treatment of pneumonia, cardiac arrhythmias, congenital syphilis, heart failure without valve lesions, roentgenology in the diagnosis of diseases of the heart and aorta, enterogenic factors in cardionepritic states and pneumonia in the aged. These lectures are all brief and most of them are rather platitudinous.

The second part of the book is devoted to the proceedings of the "Cardiac Round Table," where various

aspects of heart disease are presented for general discussion. Very little new or unusual material is brought out in the discussion. The final event of the Cardiac Round Table is the presentation of a memorial tablet to Dr. William Beaumont. The presentation speech, by Dr. Walter R. Steiner of Hartford, describes, briefly, Doctor Beaumont's life and work.

The volume is completed by a series of fourteen miscellaneous papers written during the year by members of the hospital staff.

The book is beautifully printed and bound, but its contents scarcely seem to justify the care and expense necessary in its publication.

C. W. B.

Symptoms of Visceral Disease: A Study of the Vegetative Nervous System in Its Relationship to Clinical Medicine. By Francis Marion Pottenger. Fourth edition. Illustrated. St. Louis: The C. V. Mosby Company. 1930.

That the author of one of the most widely known and monumental works on tuberculosis should step from his chosen sphere into the intricate domain of visceral neurology, there to develop a text of surpassing excellence,

(Continued on Next Page)

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BOOK REVIEWS

(Continued from Preceding Page)

is surprising indeed. In doing so Dr. Pottenger has convincingly shown that it is wholly unnecessary for the so-called chest or tuberculosis specialist to shut himself in a sanatorium and then forget all but simple facts connected with his own activities. Pottenger himself, in the preface to the first edition of "Visceral Disease," voices his doubt that such a thing as a medical specialty has a right to exist.

The fourth edition of the present volume is, like the preceding editions, divided into three parts. The order has been changed, however, so that the anatomy, physiology and pharmacology of the vegetative nervous system have been considered first. In this section the anatomy of the vegetative nervous system and its relationship to the central nervous system is clearly outlined. The fundamental considerations underlying the origin and effect of various visceral reflexes are carefully presented.

In the second part the author establishes the relation-

ship between the vegetative nervous system and the symptoms of visceral disease. Following a classification of symptoms and a discussion of their causes he develops the various related viscerogenic reflexes.

The third portion of the volume is devoted to the innervation of important viscera with a clinical study of the more important viscerogenic reflexes. In this portion clinical considerations predominate and the reader is led to the interpretation of pathology through altered reflexes and their effects.

Valuable bibliographies conclude many chapters, giving the students the opportunity for further study with a minimum of effort.

Clarity and unity are noteworthy features of the book, so that the reader may follow the author's reasoning without effort. To this end charts and diagrams have been freely used with gratifying effect.

Altogether the volume may be well recommended not only to students, but to practitioners who are interested in the intelligent interpretations of symptoms and signs and the story they have to tell of the sick organ in the ailing patient.

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Surgical Diagnosis. By American authors. Edited by
Evarts Ambrose Graham, three volumes with sep-
arate index. Pp. 2750. Illustrated. Philadelphia
and London: W. B. Saunders Company. 1930.

These volumes fulfill a need long felt not only by the
general surgeon, but especially by the general practi-
tioner. They consist of a series of monographs covering
various subjects from the point of view of etiology,
pathology, and diagnosis. Treatment is only very lightly
touched upon. There are forty-two contributors, all
active and recognized authorities in their subjects.

The subject is covered completely and represents the
current views of the present day. The bibliography given
with some of the monographs is especially helpful and
should be a stimulus to students. The section on post-
operative complications, by Elliott C. Cutler and W. J. M.
Scott, will be of especial interest to medical students
who often complain that this subject is not well cov-
ered in their teaching. Postoperative atelectasis, how-
ever, is poorly covered in this section. The monograph
on surgical diseases of the thorax written by the editor,
Evarts A. Graham, deserves special mention. This sec-
tion of about two hundred pages covers completely the
physiology and diagnosis of the diseases of the chest as
we understand them at the present time, and is written
in such a way that the medical student and general prac-
titioner can easily grasp the subject.

In general, these volumes form a valuable reference
library to the practical surgeon and practitioner.

S. B.

Minor Surgery. By Arthur E. Hertzler and Victor E.
Chesky. Second edition. Pp. 602. Illustrated. St.
Louis: The C. V. Mosby Company. 1930.

This is a textbook of the diagnosis and treatment of
surgical lesions. The text is very well written and ex-
ceptionally well illustrated by photographs and drawings.

The author's chapters on "Diseases and Injuries of the
Face," "Affections of the Neck," "Tumors," "Deformi-
ties," and "Inflammatory Diseases of the Upper Extre-
mities," are the best I have ever seen in any textbook.
Possibly the only chapter not worthy of the author's
ability and experience is "Affections of the Scalp and
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L. R. C.

(Continued on Next Page)



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BOOK REVIEWS

(Continued from Preceding Page)

Applied Bacteriology for Nurses. By Charles Frederick Bolduan. Sixth edition. Revised and enlarged. Pp. 251. Illustrated. Philadelphia and London: W. B. Saunders Company. 1930. Price, \$2.

This little book of 251 pages is written in simple language and covers the fields of general and special bacteriology in sufficient detail for the nurse in training. It is well printed and illustrated, the numerous photographs of the pioneers in the field of bacteriology being especially interesting to beginners.

On the whole the subject matter has been brought well up to date, but it is regrettable that an antiquated method of vaccination against smallpox should be described in preference to the method which is recommended by the United States Public Health Service.

One chapter—Bacterial Food Poisons—should be rewritten. The whole of the paratyphoid-enteriditis group of bacterial food infections has been dismissed with a short paragraph on Bacillus Enteriditis which is entirely inadequate and the section on botulism is, in fact, a remarkable collection of inaccuracies which it is impossible to justify.

E. C. D.

Personal and Community Health. By Clair Elsmere Turner. Third edition. Pp. 443. Illustrated. St. Louis: The C. V. Mosby Company. 1930. Price, \$2.75.

This third edition of Turner's excellent book has been thoroughly revised and includes several new sections. It deals with the health of the individual and of the community and has been prepared for students in universities, colleges, normal and professional schools.

The text is well arranged and amply illustrated. The various topics are discussed briefly, but in sufficient detail to meet the purpose for which the book is intended. On the whole the subject matter has been brought up to date with the more recent conceptions of hygiene and preventive medicine, but it is unfortunate that such terms as autointoxication and ptomaine poisoning should be retained and given prominence.

The book is not a text for medical students nor a work of reference for the practitioner of medicine or the public health official, but it would be admirable for the layman who is interested in informing himself about the problems of hygiene and preventive medicine as they affect the individual and the home. The practitioner of medicine may have no hesitation in recommending it to those of his patients who seek his advice as to what they may read concerning these important subjects.

E. C. D.

Manual of Physical and Clinical Diagnosis. By Otto Seifert and Friedrich Mueller. Translated from the twenty-fourth German edition by E. Cowles Andrus. Pp. 543. Illustrated. Philadelphia and London: J. B. Lippincott Company. 1930.

This little manual on diagnosis is remarkable in that it has combined so many essential facts in so small a space. Here we have the everyday methods of both physical and laboratory diagnosis presented together, instead of separately, as is the case with so many American manuals and outlines. Practically all the information necessary to the diagnosis of any ordinary case is readily available, including x-ray and electro-cardiographic findings.

(Continued on Page 22)

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Mead's Viosterol in Oil is now designated 250 D because, in accordance with the provisions of the Wisconsin Alumni Research Foundation, we are now assaying the product by the Steenbock method. Before October 1, 1930, this same product was assayed by the McCollum-Shipley method and was designated 100 D. This was done in the belief that this method gave results comparable with that prescribed by the Wisconsin Alumni Research Foundation for its licensees. It was discovered, however, that when assayed by this method the potency of the product was virtually 250 D in comparison with products standardized by the Steenbock method.

Mead's Viosterol in Oil, 250 D (Steenbock method)—in normal dosage—is clinically demonstrated to be potent enough to prevent and cure rickets in almost every case. Like other specifics for other diseases, larger dosage may be required for extreme cases. It is safe to say—based upon extensive clinical research by authoritative investigators (reprints on request)—that when used in the indicated dosage, Mead's Viosterol in Oil, 250 D is a specific in almost all cases of human rickets, regardless of degree and duration, as demonstrated serologically, roentgenologically and clinically.

The change in Mead's Product is in designation only—not in actual potency. Mead's Viosterol in Oil, 250 D—in proper dosage—continues to prevent and cure rickets.

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The date of the clinic will be February 3 to 13, inclusive. Full morning and afternoon sessions will be held regularly.

The course will be an intensive one of ten days. The clinical instruction will be fully supplemented by lectures and lantern slides.

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1406 Medical Arts Building
CLEVELAND, OHIO

BOOK REVIEWS

(Continued from Page 20)

The authors have met extraordinarily well the most difficult problem of what to include and what to leave out. At times there seems to be too much detailed chemistry. Certain contagious diseases might have a little more space to advantage. The absence of a bibliography is highly commendable in this type of work. The section on the nervous system is worth reading to any physician or medical student. The book seems to be the best of its type which has appeared and merits general usage in this country. G. C.

Handbook of Pediatric Procedures. By Francis Scott Smyth and Edith I. M. Irvine-Jones. Pp. 212. New York: The Macmillan Company. 1930.

The authors have condensed into outline form all the necessary diagnostic and therapeutic procedures essential to the practice of pediatrics. The book gives outlines for histories, physical examinations and laboratory diagnosis, and also, in detail, diets in various diseases, biological, physical and drug therapy and emergency treatment. It is a very valuable little reference book. H. E. T.

Clinical Nutrition and Feeding in Infancy and Childhood. By I. Newton Kugelmass. Philadelphia: J. B. Lippincott Company. 1930.

This book, in addition to its discussion on normal and pathological problems of feeding, has very complete tables of food values, caloric portions, etc. Another valuable feature of the book is the detailed diets for different ages in such conditions as allergic diseases, epilepsy, typhoid, etc. The contents are much more comprehensive than the title would indicate. H. E. T.

Punch and Judy, Doctors of Public Health.—The Minnesota Public Health Association has found a novel and attractive way of educating the public in health matters by presenting the subject in the form of a Punch and Judy show at the county fairs. The puppets are real English puppets, imported from London, and the health play follows the familiar style of the old laughter-provoking puppet performances.—*United States Department of Labor.*

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TRUTH ABOUT MEDICINES

New and Nonofficial Remedies

(Abstracts from reports of Council on Pharmacy and Chemistry, A. M. A.)

In addition to the articles previously enumerated the following have been accepted:

Lederle Laboratories, Inc.—Diphtheria Toxoid.

Maltine Company.—Maltine with Cod-liver Oil and Iron Iodid.

The following articles have been exempted and included with the list of exempted medicinal articles (New and Nonofficial Remedies, 1930, p. 477):

E. R. Squibb & Sons.—Tablets Digitalis Leaves (Squibb), one Cat Unit (approximately one and one-half grains); Tablets Digitalis (Squibb), one grain (10 minims U. S. P. tincture).

The following products have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in New and Nonofficial Remedies:

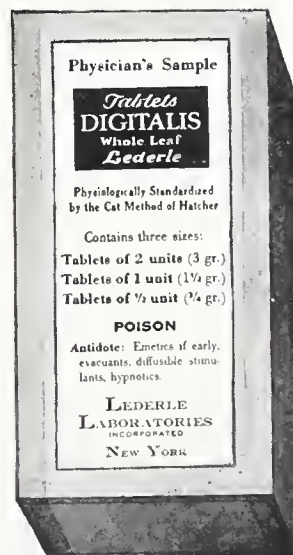
Amytal—Isoamylethylbarbituric Acid.—Amytal differs from barbital (diethylbarbituric acid) in that one of the ethyl groups of barbital is replaced by an isoamyl group. The actions and uses of Amytal resemble those of barbital. It is proposed as a sedative and hypnotic in the control of insomnia and as a preliminary to surgical anesthesia. Amytal is also supplied in tablets containing one and one-half grains. Amytal can be used before local or general anesthesia safely only by those who have had much experience and are familiar with the literature concerning such use. Eli Lilly & Co., Indianapolis.

Pulvules Sodium Amytal, Three Grains.—Gelatin capsules ("pulvules") each containing 0.2 gram (three grains) of sodium amytal, the monosodium salt of isoamylethylbarbituric acid. The actions and uses of Pulvules Sodium Amytal, three grains, re-

(Continued on Page 27)

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SPINACH SALAD

(Six Servings)

	Gms.	Prot.	Fat	Carb.	Cal.
1½ tablespoons Knox Sparkling Gelatine	10	9	..	..	..
¼ cup cold water	..	..	..	..	..
1½ cups boiling water	..	..	..	..	..
2 tablespoons lemon juice	20	..	..	2	..
½ teaspoon salt	..	..	..	..	..
1½ cups cooked spinach chopped	300	6	..	7	..
2 hard cooked eggs	100	13	10.5	..	..
Total	28	10.5	9	242.5	
One serving	5	2	1.5	40	

Soak gelatine in cold water and dissolve in boiling water. Add lemon juice, salt, strain and chill. When nearly set, stir in chopped spinach, mold and chill until firm. Serve on lettuce hearts or tender chicory leaves and garnish with hard cooked egg, cut lengthwise in sixths and sprinkled with paprika. Serve with mayonnaise.

JELLIED CHICKEN IN CREAM

(Six Servings)

	Gms.	Prot.	Fat	Carb.	Cal.
1 tablespoon Knox Gelatine	7	6	..	..	..
¼ cup cold chicken broth or water	..	..	..	..	..
1½ cups boiling chicken broth, fat free	..	..	..	..	..
½ teaspoon salt	..	..	..	..	..
Pinch pepper	..	..	..	..	..
1 cup cooked chicken, cubed	125	24	20	..	..
¼ cup cream, whipped	55	1	22	1.5	..
Total	31	44	1.5	526	
One serving	5	7	..	88	

Soak gelatine in cold liquid for five minutes and dissolve in hot broth. Season with salt and pepper and chill until nearly set. Fold in chicken and whipped cream. Turn into molds and chill until firm. Serve on lettuce or garnished with parsley and strip of pimento.

TOMATO JELLY

(Six Servings)

	Gms.	Prot.	Fat	Carb.	Cal.
1½ cups hot water	..	..	..	..	..
½ teaspoon salt	..	..	..	..	..
½ teaspoon whole mixed spices	..	..	..	..	..
1½ tablespoons Knox Sparkling Gelatine	10	9	..	..	..
5 tablespoons cold water	..	..	..	..	..
1½ cups tomatoes strained	250	3	.5	10	..
2 tablespoons vinegar	..	..	..	..	..
Total	12	..	.5	10	92.5
One serving	2	..	..	2	15

Bring to boil, hot water, salt and spices. Soak gelatine in cold water for five minutes and dissolve in hot liquid. Strain into tomatoes and add vinegar. Stir well and pour into molds. Chill until set. Serve plain, or on lettuce, with or without salad dressing.

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If you agree that recipes like the ones on this page will be helpful in your diabetic practice, write for our complete Diabetic Recipe Book—it contains dozens of valuable recommendations. We shall be glad to mail you as many copies as you desire. Knox Gelatine Laboratories. 417 Knox Ave., Johnstown, N. Y.

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active measures for immunization taken. In all of these tests, Squibb Scarlet Fever Toxin was used.

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TRUTH ABOUT MEDICINES

(Continued from Page 23)

semble those of barbital. The product is proposed as a sedative and hypnotic in the control of insomnia and as a preliminary to surgical anesthesia. Pulvules Sodium Amytal, three grains, can be used before local or general anesthesia safely only by those who have had much experience and are familiar with the literature concerning such use. The pulvules may be administered by mouth or rectally. Eli Lilly & Company, Indianapolis.—*Journal of the American Medical Association*, October 18, 1930, p. 1178.

FOODS

The following products have been accepted by the Committee on Foods of the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in accepted foods:

Argo Cornstarch (Corn Products Refining Company, New York).—A refined cornstarch of high purity. It contains 86.95 per cent of starch. It yields 3.50 calories per gram (99.4 per ounce). Argo Cornstarch is proposed for use in puddings, custards, ice cream, a wide variety of desserts, in bakery products, and for thickening gravies, sauces, pie filling, stewed fruits, etc.

Dromedary Golden Dates, Pitted and Plain (The Hills Brothers Company, New York).—Pasteurized pitted or plain Mesopotamian dates in cartons. Selected Mesopotamian dates, pitted or plain, are washed, and pasteurized in ovens so that nonsporulating bacteria will not survive the treatment. Pits constitute 12.8 per cent of plain dates. The pitted dates contain protein, 1.7 per cent; fat, 1.9 per cent; total carbohydrates, 73.0 per cent. Pitted dates yield 3.16 calories per gram (89.7 per ounce). It is claimed that the pasteurization makes these dates a safe food;

(Continued on Next Page)

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TRUTH ABOUT MEDICINES

(Continued from Preceding Page)

they are an easily digested energy food for children and adults.—*Journal of the American Medical Association*, October 18, 1930, p. 1179.

PROPAGANDA FOR REFORM

Increased Potency of Viosterol Preparations.—The Wisconsin Alumni Research Foundation informed the Council on Pharmacy and Chemistry that the accumulated clinical experience with viosterol has shown that better results in the treatment of rickets are secured when a dosage of vitamin D is used larger than that originally recommended and that the maximum limits of safety as to the amount of vitamin D that can be used has now been more definitely determined than was the case when preparations of viosterol were first put on the market. Instead of increasing the dosage of the present products, the Foundation and its licensees determined to increase the potency of the preparations. It was decided to increase the potency of viosterol in oil so that instead of having one hundred times the vitamin D potency of a standard cod-liver oil as determined on rats by the Steenbock line test, it shall have two hundred and fifty times that potency, and, provided the Council should agree, to increase the potency of

cod-liver oil with Viosterol so that instead of having five times the potency of a standard cod-liver oil as determined on rats by the Steenbock line test, it shall have ten times that potency. The Foundation announced that these preparations of increased potency would be placed on the market beginning with October first. The Council on Pharmacy and Chemistry announces that it has accepted the changes of potency determined on by the Foundation and has changed the name of viosterol in oil 100 D to viosterol in oil 250 D and the name of cod-liver oil with viosterol 5 D to cod-liver oil with viosterol 10 D and has continued the acceptance of the viosterol preparations already accepted, under the new names.—*Journal of the American Medical Association*, October 4, 1930, p. 1021.

Hypervitaminosis with Vitamin D.—The uncertainty as to the possible toxicity of an agent so uniquely potent as viosterol (irradiated ergosterol) awakened misgivings regarding the desirability of advocating its widespread use. These misgivings prompted the limitation of the recommended dosage within modest bounds. The pendulum of dosage had swung so far in the direction of caution that it now seems advisable to increase somewhat the concentration of viosterol in oil and in cod-liver oil with viosterol and accordingly the Council on Pharmacy and

(Continued on Page 30)



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We wish to announce that the Wappler Electric Company and the American X-Ray Corporation have been merged into the Westinghouse X-Ray Company, Inc., and that we are official agents for this company throughout the states of California, Nevada, and Arizona. We also wish to make it plain that all equipment under either the Wappler or the American Label, in this territory, purchased from any agent, prior to the merger . . . or from us in the future, will be serviced by us cheerfully and promptly. Therefore, please feel at liberty to phone or write us when in need of such service, even if we have not directly contacted you. We thank you for past patronage, and as agents for the WEST-INGHOUSE X-Ray Company, can assure you of even greater service and a more extensive line of Modern X-Ray products.

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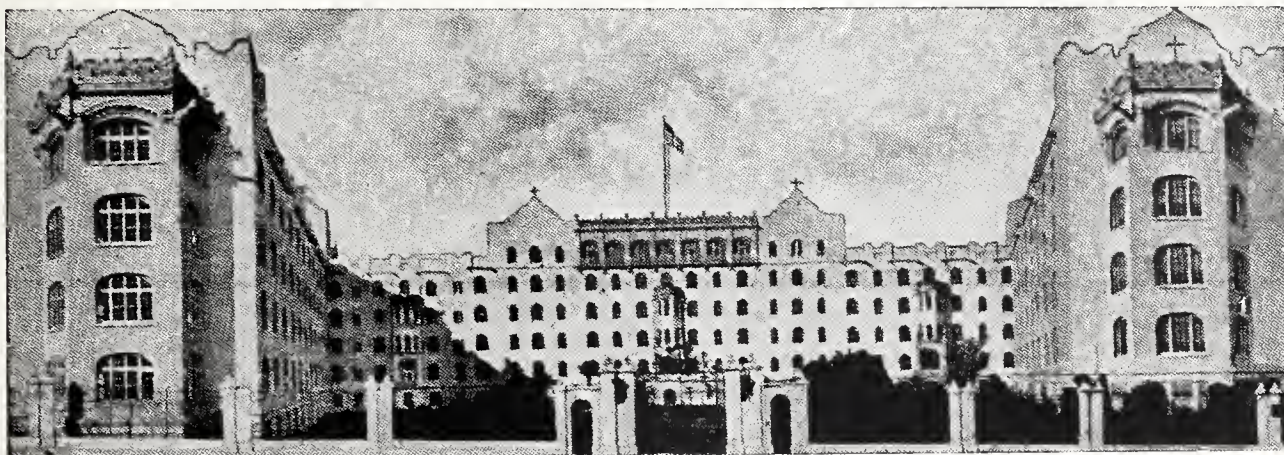
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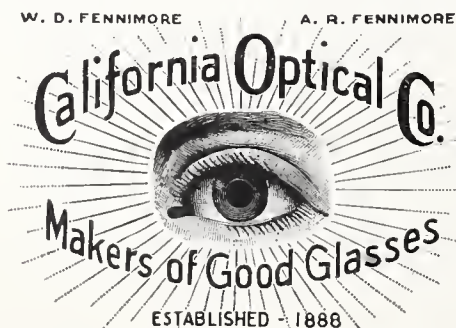
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TRUTH ABOUT MEDICINES

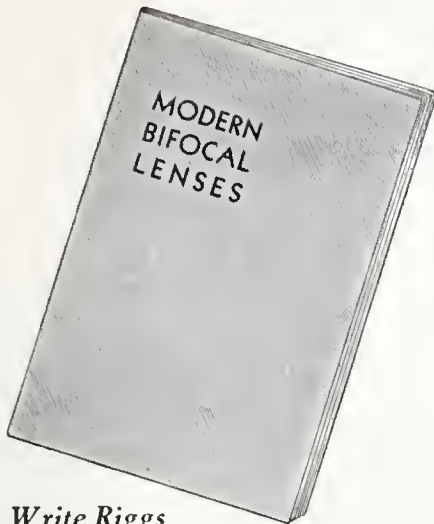
(Continued from Page 28)

Chemistry reports that preparations of viosterol in oil formerly having one hundred times the vitamin D potency of a standard cod-liver oil as determined on rats by the Steenbock line test are increased to two hundred and fifty times that potency, and that the preparations of cod-liver oil with viosterol formerly having five times the vitamin D potency of a standard cod-liver oil as determined on rats by the Steenbock line test are increased to ten times that potency.—*Journal of the American Medical Association*, October 4, 1930, p. 1023.

Oral Immunization Against Pneumococci.—Thus far, laboratory studies concerning oral immunization against specific infections have not been encouraging. Most of the suggested oral vaccines apparently are rapidly destroyed or denatured in the gastro-intestinal tract. Oral immunization will presumably be limited to the relatively few vaccines sufficiently resistant to gastro-intestinal denaturation. The most resistant group of microorganisms are apparently the pneumococci. Recently, successful oral vaccines against pneumococci are reported to have been developed by Dr. Victor Ross. It is to be hoped that Ross's encouraging researches will not be handicapped by premature clinical or commercial exploitation.—*Journal of the American Medical Association*, October 4, 1930, p. 1024.

The Stroopal Fraud.—For many years a nostrum known as Stroopal has been sold on both sides of the Atlantic as a cure for cancer. The product apparently originated in Germany. For some years it was exploited from London and was exposed by London *Truth* nearly twenty years ago. According to Gehe's Codex, Stroopal is composed of the powdered leaves of *Teucrium scordium*, otherwise known

(Continued on Page 37)



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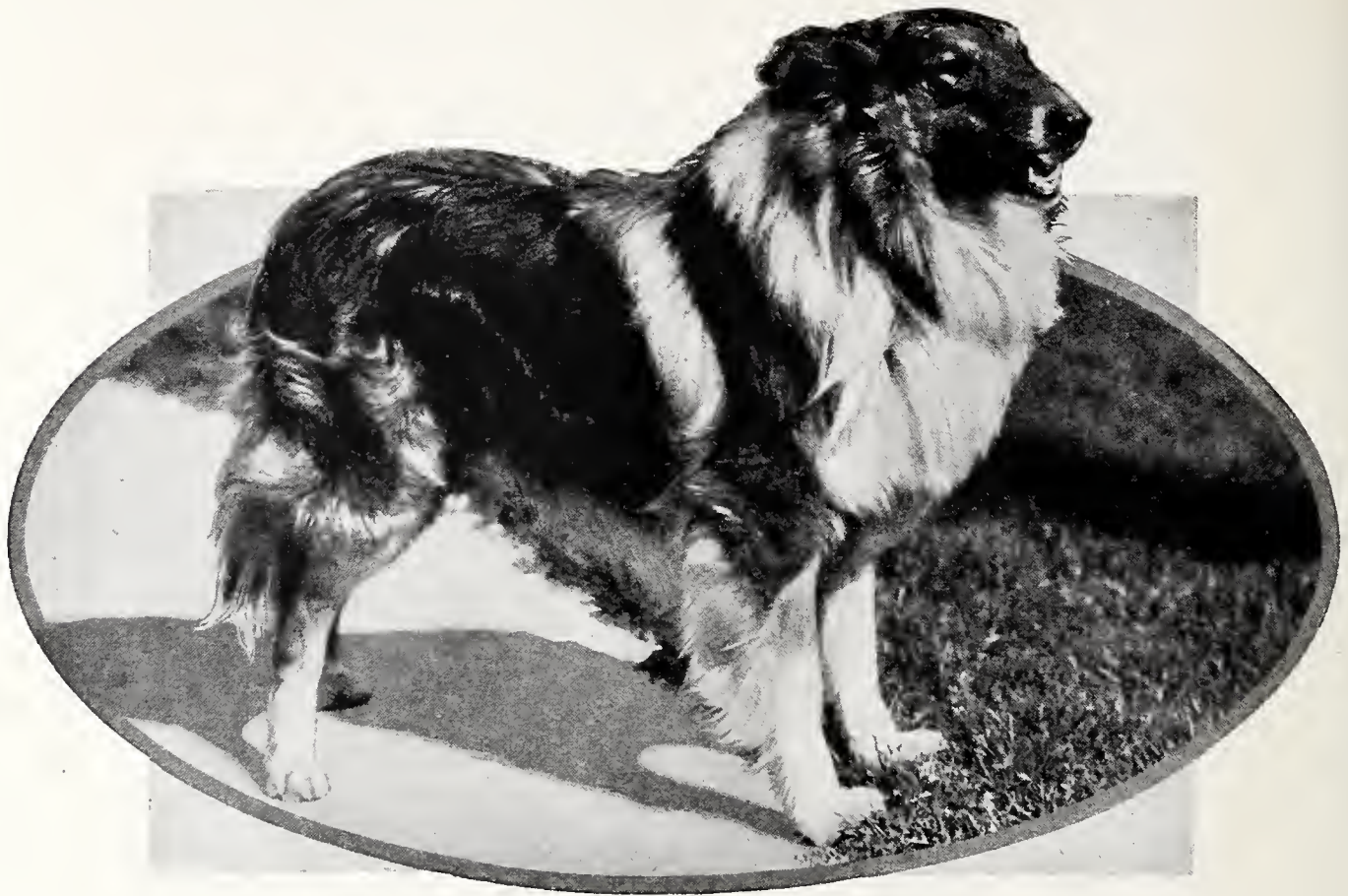
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THE COUNTY MEDICAL SOCIETY— A BUSINESS ORGANIZATION*

By LYELL C. KINNEY, M. D.
San Diego

THE defined purpose of a medical society is to promote the science and art of medicine. Since the day of the pioneer that has been done well. Much of the progress in modern medicine is due to the work of the medical society in constantly reëducating its members and keeping them abreast of clinical and scientific advance. There have been times when the county medical society has done valiant work in public health education, supporting health measures, and in legislative crises. But the chief interest of the medical society has been in mutual improvement that its members may practice better medicine. Such an association was absolutely essential in the early days of difficult communication; it was sufficient twenty-five years ago, but it does not entirely meet the present needs of the medical profession.

The social and economic movements of our day make it imperative that the county medical society shall become a strong business organization as well as a progressive scientific association. Thus far the business of the medical society has been limited to the intrinsic details of self-management. We have not formed compact, powerful business organizations because we have not felt the need for them and because by training and practice we are individualists and apparently adverse to organized effort. In the changing social order the very life of the profession and the progress in medicine will depend upon the strength and business activity of the county and state medical societies. The present need is for a strong organization representing the collective judgment of the profession which will speak with authority and act as a unit in all of our relations with public and governmental agencies.

WHY THE NEED OF BUSINESS ORGANIZATION IN MEDICINE

The question naturally arises, "Why do we need a business organization?" The position of the modern American physician is unique. There is no other country in the world where the economic status of the doctor equals ours and there has never been a time in history when the physician occupied so enviable a position. Why, then, this new emphasis upon business organization.

First: The public is charging us with failure to deal with modern economic conditions and is holding us responsible for many of them. There is no question that, to the great mass of our population, prolonged sickness brings financial tragedy as well as physical suffering. There is a constant flow of discussion through the newspapers and magazines concerning the cost of sickness and almost universally the doctor is blamed for this financial burden. Even the most friendly critics state that the doctor has failed in coping with this situation and that the public must solve this problem for itself. Business men and social economists are demanding of the profession so-called modern business methods. They are suggesting mass production. Many are advocating the establishment of hospitals and clinics with the doctors on a salary and the distribution of medical service along purely commercial lines.

Such demands are an expression of ignorance concerning the practice of medicine and represent a short-sighted analysis of the cost of sickness. Less than three per cent of the income of this country is spent because of illness. America spends less on sickness than upon candy and tobacco. Only one-fourth of this expense is paid to the doctor. At least an equal amount is spent by the public in self-medication, and a very large part of the hospital expense is due to the extravagant tastes and unnecessary nursing requirements of the patient. A similar extravagance is the increasing demand for high-priced specialists and exact diagnostic methods when more than 85 per cent of the sick can be efficiently treated by the family physician. The economic fact is that the legitimate cost of sickness is not excessive, but that the distribution of this cost is the cause of hardship. A very small fraction of our population carries the entire national cost at any given time. Also sickness is unexpected and very few make any provision for it in their financial arrangements. Certainly none of these conditions can be blamed on the doctor. In spite of these facts the public is declaring a medical economic crisis and demanding relief from the profession or through legislation by forcing radical changes in medical practice.

Second: The rapid growth of state medicine and compulsory health insurance threatens the future of the profession. At present state medicine obtains in twenty-five countries, including nearly all of Europe and Great Britain, and in these countries practically one-third of the population is furnished free medical care. Except in Russia this applies only to the working population. There are many reasons why the European

* Read before the San Bernardino County Medical Association, October 7, 1930.

plans will not be accepted in this country. In France the new insurance law provides only for workers of an income of less than 25,000 francs, which at the present rate of exchange is about \$1000 a year. In Great Britain the limit is 250 pounds, which is approximately \$1200. In California, people of this financial status are treated free in our county hospitals. In England the Compulsory Health Insurance Act only provides the care by the family physician and makes no provision for specialists, surgery, or hospitalization. Throughout Europe patients are cared for by wholesale methods and largely by patent medicine practice. The fees paid to the physician are so low that he must handle a large volume of work, preventing careful individual study and stifling initiative and research. In contrast, the American people have been educated since the war to demand the best in medicine and will never be satisfied with an inferior medical service.

The International Labor Office of the League of Nations gives unqualified approval to these insurance systems and foresees that "compulsory sickness insurance appears likely to occupy an increasingly important place in the social legislation of every country." That report goes on to state that "compulsory insurance is aiming to cover the whole class of wage-earners, or at least, those that are of small means." The secretary of the British Medical Association recently stated that 90 per cent of the British physicians doing insurance work are satisfied with the panel system. The president of that association at the recent meeting in Winnipeg, after summing up medical economic problems, concluded that, "In my judgment there is only one possible answer, health insurance."

In California the railroads and large industries are providing compulsory health insurance to their employees to the entire satisfaction of both the corporation and the insured. The number of workers included in this provision is constantly increasing, and will continue to increase at the insistence of both the labor unions and employers.

In this connection the rapid extension of the insurance principle to labor is important. Accident insurance is almost universal and is an accepted business principle. At present leaders of labor and industry are advocating unemployment insurance. Governor Roosevelt will recommend that the next state legislature in New York "take up a practical definite study of unemployment insurance." The labor unions are prepared to introduce bills providing for unemployment insurance in every state in the union at the next meeting of the legislatures. This is a trend of public thought that we must recognize, for compulsory sickness insurance is only a short step in the long path from accident insurance to insurance against unemployment.

Your Council of the California Medical Association is making a comprehensive study of these economic conditions and social trends, and it is the belief that the profession in California must

shortly face these problems of state medicine in the legislature, since proposed laws bearing thereon are almost certain to be submitted.

Third: Government agencies and private philanthropy are encroaching upon the practice of medicine. The medical profession always has and always will take good care of the worthy poor, but free clinics and free hospitals are growing like mushrooms until they have far outdistanced the needs of the poor. These agencies are extending their free medical service to include a large class of patients who are able to pay. Many social and welfare workers are encouraging this practice and are indiscriminately referring patients to free institutions without regard to their financial status. Nine million patients will be treated this year in America in free clinics. Philanthropic and charity organizations vie with each other in establishing free clinics until there is needless overlapping and duplication, and in many clinics the work is perfunctory and falls below the standards of modern medicine.

There is a rapidly growing tendency for philanthropy and charity to exploit the physician in these undertakings. Large sums of money are spent on buildings and administration and a well-paid personnel. The doctor, whose service is the commodity that these organizations offer, works without compensation and is usually denied any voice in how or to whom his service is given. It must be remembered that the doctor is the only vital part of these organizations and that they only exist to distribute the free service which they exact from him.

The medical profession is not responsible for either poverty or sickness. As a matter of fact it leads all professions and groups of citizens in the prevention of disease, and this in spite of the other fact that the members of the medical profession gain their incomes from the care of people suffering from disease. Likewise the profession is no more responsible for the care of the indigent sick than is any other member of society. No other class or profession can be employed by these charity institutions without pay. Society as a whole is responsible for the entire care of the sick poor, and not only for his food and shelter. It has no right to exact from the doctor service without compensation.

Fourth: These are business problems and can only be solved by a business organization and business methods. The physician acting as an individual is powerless to cope with them. In these economic problems the profession is facing an organized public and organized charity. Medical problems that we have long evaded and neglected are being carefully and forcefully considered by great industrial corporations, labor unions, legislatures, and heavily endowed institutions. All of these agencies are seeking to control the practice of medicine in their own spheres, with mass production, low cost and wide distribution as their principle aims, and in these programs the doctors as individuals are looked upon only too often as sort of useful tools or accessories.

THE MEDICAL PROFESSION CAN SOLVE ITS PROBLEMS

There is no question that the medical profession can solve these problems or that it can effectually meet these economic forces, but it must be united in a solid, compact business organization in order to do so.

The functions of this business organization will be numerous and they will constantly change with new social developments. At the present there are five such functions which should be emphasized:

First: The county society should educate its members in the modern economic problems that affect medicine. The California Medical Association and the American Medical Association are powerless without the intelligent support of their component units. Few of us are acquainted with the rising economic forces that confront the profession. Few of us realize how deep and widespread is the public criticism. Few of us foresee the drastic changes that social enthusiasts will try to force upon the medical profession. This is an opportune time for every county medical society to adopt a new policy and devote as much time to the study of medical business as it does to medical science. Let us remember that to neglect the business or organization work of our profession may lay the foundation of not only less business and organization, but also of less science in medicine as well.

There should be a medical economics committee in every county unit which will assemble the current discussion and present it at frequent intervals of the meetings of the society. Our current medical literature this year has many statesmanlike studies of these questions, and the friendly lay magazines are presenting much constructive criticism with which we should all be familiar. The findings of the National Committee on the Costs of Medical Care and the newly formed bureau of the American Medical Association (the California Medical Association House of Delegates petitioned the American Medical Association to provide such a bureau) will all be available. Our California Medical Association Committee on Medical Economics will coöperate fully with the local county committees. Either at stated meetings on business or as a part of the regular scientific programs the county societies should consider the social relations of the profession and give to these subjects the same free discussion that is given to scientific topics. No worship of science, as some would have us do, should deter us in our insistence on this point. To quote the 1930 Del Monte presidential address of Dr. Morton Gibbons: "We must become experts and we must be able to prove to the people of California that what we advocate is best. Let us make ourselves the best informed group on health insurance in California."

Let me assure you that the California Medical Association does not favor state medicine in any form nor does it favor the promulgation of any

existing type of compulsory health insurance. The California Medical Association does realize that these are pressing problems of the present and of the near future and that the medical profession must be in the position to lead and to direct in any legislation that will come up for consideration. In this the officers of your State Medical Association must have the intelligent and forceful backing of each county organization.

Second: A business function of the county medical society is to make collective decisions and act as a unit in matters of public policy. The constitution of the California Medical Association requires each county society to appoint or elect a local committee on public policy or, in other words, a local committee on legislation. A description of the duties of this committee will indicate the requisite business activities of the society in this regard. The local committee on public policy is an auxiliary to a similar committee of the state association and as such is charged with "securing and enforcing legislation in the interest of public health and scientific medicine." Especially during each session of the legislature it must be constantly alert in shaping public opinion and in maintaining proper contacts with legislators on public health and other matters in which the medical profession has vital interests.

The members of each local committee should cultivate the senator and assemblymen from the county and should know them personally, so that the society may effectively present to them the judgments and decisions of the profession. This is especially important under the provisions of the recent amendments to the constitution of the State of California, which allows only one senator to each county. Thus every county, irrespective of size, has an equal voice in the final passage of any measure before the legislature. If the senator or assemblyman knows that the medical profession in his county is compactly united and that the legislative committee has the active loyal support of every doctor and his clientele, he will listen with respect to their judgments and requests and will carefully consider the same.

Also it is the duty of the local legislative committees to know who are the candidates for election to the legislature and to county and municipal offices whose duties affect medicine or public health. They should early ascertain the ideals and fitness of these men and report their findings to the county societies. Where questions of public health are at stake suitable candidates should receive the endorsement and support of the entire membership, as is the custom of the Bar Association.

Further, the local legislative committees should keep constant watch for proposed ordinances that affect the health of their communities and promptly present them to their societies. These reports should have careful consideration, and firm and diplomatic action should be taken that will be an authoritative expression of the opinion of the organization.

Our county medical societies have by long tradition, and often by the dictates of their constitution, kept out of so-called politics. These were and are wise provisions, except where political situations affect medicine or health. In our modern social life the preservation of individual and public health demands vigorous and concerted action by the medical profession. Our legislators and county officers are of the opinion that the doctors do not know what they want, that they will not stick together and consequently can be ignored. This opinion is widespread, and under present conditions is more or less true. We will continue to be ignored so long as we persist in drifting as individuals and until we unite ourselves in a cohesive business group. Public officials and legislatures will not ignore a compact organization that deals with legislative and political problems in a business way or one that speaks as a unit and votes as a unit.

Third: The county medical societies should use modern business methods in distributing public health information. One exception is to be noted. The Council of the California Medical Association specifically disapproves of paid advertising campaigns in the newspapers. The California Medical Association Committee on Public Instruction is prepared to advise the county societies, and the bureau of the American Medical Association will provide extensive and valuable information. The best illustration of this activity is the recent work of the Long Beach branch of the Los Angeles County Society.* With the assistance of the department stores, drug houses, and newspapers, as well as with the extensive use of circulars, they introduced a progressive and continuous campaign of education into every home in the city. The expense was small but the business method was marvelously effective and has opened the way for a continuation of the program as needs therefor may arise.

Fourth: The county medical societies can exercise a business control over the free clinic and free hospital practices in their counties. The individual doctor cannot deal with this situation. The physician usually knows nothing of the needs or policy of the institutions and has very little voice in how or to whom his services are given. It should be the business of the societies to thoroughly investigate all clinics or hospitals where its members give free medical service. The county societies as organizations can survey the economic and social conditions and indicate what free service is necessary. The societies can examine the standards of medical practice in these institutions, ascertaining where there is waste or duplication, and where the service is imposed

upon, either by the public or by the lay directors. It should, then, be the duty of the societies to approve or disapprove each such clinic according as its social or professional requirements are met. All this, of course, to be done in broadminded, nonpartisan, judicial, and scientific spirit. If the county societies are business organizations their members will then refuse to do charity work in institutions that do not have approval of the societies, very shortly Community Chests and lay charities would refuse to support the institutions that are not approved by the medical societies. This is not a selfish point of view. It is sensible, honest business. It means better medical attention to the patients whose circumstances are such as to make them eligible to free treatment; it means protection to the taxpayer and to private charity as well; and it means protection and justice to the medical profession.

Fifth: The county medical societies should educate their members in modern business methods in private practice. This has the ring of heresy to the Hippocratic tradition, but one of the most just criticisms hurled at the profession is that we are not businesslike in dealing with our patients. Many of the economic difficulties can be remedied by frank business methods, adapting the charges to the needs of patients and their ability to pay. There are many phases of the business of medicine that can be the subject of helpful discussion, such as: the handling of accounts, collections, extension of credits, group diagnoses, and the restriction of unnecessary hospital costs. A free consideration of these subjects in the meetings of the county medical societies is not out of place and it will add to the dignity and usefulness of every society that takes cognizance of these things.

The conception of a business organization does not belittle the present activities of our county medical societies. We are justly proud of them as they are. Their scientific activities must continue to grow. Greater effort must be made to reeducate our members in the fundamental facts of medicine and to extend their knowledge of new clinical methods and research. On the other hand, the county medical societies must recognize that the medical profession is facing greater and more difficult problems in its public relations than it has in its clinical practice.

The time has come when we must apply as much science to the business of medicine as we do to the art of medicine. We cannot escape our individual and collective responsibilities by referring these problems to our state or national medical associations. The state and national medical organizations will be effective only in proportion to the intelligent and active support they receive from their component county units. It is incumbent upon each county medical society to face modern social problems and to assume the additional rôle of an efficient business organization.

* For a digest of the report by Dr. Fred B. Clarke of Long Beach, see Miscellany Department of this issue of California and Western Medicine, where the report is listed under the caption, "A Public Health Campaign—As Sponsored by the Long Beach Branch of the Los Angeles County Medical Association," Page 914.

ANGINA AND OTHER PRECORDIAL PAIN— THEIR DIFFERENTIATION*

By EUGENE S. KILGORE, M. D.
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DISCUSSION by William Dock, M. D., San Francisco;
T. Homer Coffen, M. D., Portland, Oregon; Donald J.
Frick, M. D., Los Angeles.

ANGINA is an old and favorite subject for medical discussion, and there seems to be little opportunity to throw new light on a topic which has received so much attention from the masters of medicine since the time of Heberden. And yet the "physiognomy" of angina is still often hazy and surrounded by confusing shadows; and it is well that we give it from time to time a careful scrutiny.

WHAT IS ANGINA?

What is angina, what is mock angina, what is the mechanism of the pain and of death, and what is the pathology? The answers are still colored heavily with speculation and opinion; and an impressive testimony to the unsettled state of opinion was furnished by Huchard when he enumerated sixty-four theories as to the cause of angina. According to fashion, the theories have grouped about questions of heart spasm, arterial pressures, coronary spasm or sclerosis, esophageal traction, etc. Allbut argued fervently for his theory of tension within a sensitive aorta, and Mackenzie for his concept of angina as a symptom of myocardial exhaustion, comparable to the leg pain of intermittent claudication or the pain from any muscle if worked out of proportion to its blood supply. The known facts are that most cases have some cardiovascular pathology, commonly aortic, coronary or myocardial lesions, but that these are at times slight and occasionally absent in fatal cases. And the only mechanistic conception adequately covering these facts is that taught for many years by Bamberger and Von Neusser, namely, that of an excitation in the vegetative nervous system, which may arise from various sources in and about the heart, and resulting afferently in the sensation of pain or constriction, and liable efferently, through the sensorimotor reflex arc, to stop the heart. The latter effect is usually assumed to be a simple vagal standstill; but, coming as it usually does without preliminary slowing, it is better accounted for by ventricular fibrillation.

At any rate, such a concept is a convenient frame on which to arrange our ideas of diagnosis. One case we may feel is aortitis with an enlarged aorta and no evidence of myocardial trouble, another appears to be myocardial, or again, we may feel sure of a coronary thrombosis; and with all we sense the possibility of death through the sensorimotor reflex. Now by the term "angina" we refer to all cases and only those in which such a death is considered possi-

ble; and our serious practical problem is to separate these from other confusing types of pain which convey no such threat.

CONDITIONS WHICH SIMULATE ANGINA

One need only mention the necessity of ruling out such conditions as erosive aneurysm, ordinary pleurisy and pericarditis, tabetic pains and herpes. Nerve-root pains, so carefully described by Gunther, especially in spinal arthritis, are distinguished by their sharp delimitation along the distributions of the affected nerves and by their excitation by motions of the spine. Many of these are called intercostal neuralgia or neuritis.

Then there is a miscellaneous assortment of precordial pains variously designated as nervous pain, fatigue pain, toxic or secondary angina, or pseudo-angina. Much as we desire an etiological classification, we had better honestly admit that we can give no convincing explanation for many of these pains; and to my mind the much condemned term "pseudo-angina" serves the useful purpose of designating them without pretending to understand them, and it emphasizes the all-important distinction from true angina.

DIFFERENTIAL DIAGNOSIS

To proceed at once to the differential diagnosis, it may be said that laboratory procedures, and even the physical examination, is of minor utility when compared with history, for the thing we are differentiating is a symptom complex. The x-ray and electrocardiograph are often useful in corroborating clinical impressions, and at times supply practically our only positive evidence of aortic or myocardial disease. A positive Wassermann test may help in a doubtful case. The general type of the patient helps somewhat. Males in middle age or beyond, in high pressure business or professional careers are candidates for angina. Younger subjects or women at the menopause, and neurotic types generally are more likely to have pseudo-angina. Abnormal blood pressure and cardiac murmurs, even those significant of valve damage, help but little except insofar as they contribute to our conception of the state of the aorta, the coronaries and the myocardium; and it must be remembered that such circulatory abnormalities do not protect against false angina. Poor heart sounds, some of the gallop rhythms and graver types of disordered heart-beat mechanism may, of course, point definitely to myocardial trouble; and pericardial friction, in association with other suggestive evidence (pain, prostration, poor pulse, fever, leukocytosis), may, of course, make certain the diagnosis of coronary thrombosis.

CLINICAL HISTORY

The *history* begins with the family. A minute will suffice to determine whether or not a patient has any information of value about his blood relatives. If he has, then our perfunctory formulae for recording family history should be ampli-

* Read before the Jackson County (Kansas City, Mo.) Medical Society, April 30, 1929.

fied to include all the data available. Certain families are so consistently of the cardiovascular type or of the nervous type that one almost knows what he is to find in the patient. The past history of the patient's life may be of some help if it suggests, on the one hand, rheumatic, streptococcic or syphilitic infection, or on the other neurotic tendencies.

Habits of eating, drinking and smoking are often excessive in the angina patient and abstemious in the neurotic type. Tobacco undoubtedly is at times a cause, at least an exciting cause, of angina, as in the case reported by Lambert of a man who lived comfortably three months without tobacco and then dropped dead after smoking a part of one cigar. Such cases are spectacular but, fortunately, rare, and they have served to over-emphasize in the mind of the profession the importance of tobacco as an etiological agent. In this connection it is interesting to recall the experience of the British heart hospital during the war. Most of their cases had pain, weakness, and various other functional disturbances—the sort often loosely referred to as the “cigarette heart.” But it was found that, whereas they were culled from an army of almost universally heavy smokers, these patients for the most part smoked little or not at all. The inference, of course, is not that tobacco protects the heart, but simply that the kind of man who develops the effort syndrome or pseudo-angina is also the one who is likely to eschew excesses.

STUDY OF SYMPTOMS

In the present illness the pain should be analyzed systematically under four principal headings. In the order of importance they are:

1. *The Kind of Pain.*—Two types stand out clearly. One may be called *compression pain*. Patients who have it will usually volunteer the description in such terms as “vise-like,” “terrible oppression in the chest,” “heavy weight behind the breast bone,” “petrified feeling” (pointing to central part of chest), “belt being cinched about the windpipe,” “pent-up gas behind the breast bone,” etc. The onset may be described as a sudden seizure, but as a rule careful inquiry will bring out the observation of a shorter or longer period of crescendo, and also a decrescendo as the peak is passed and the anguish melts away. Of these the vast majority are instances of true angina.

The other distinctive kind of pain may be termed *lancinating pain*. There is no crescendo here, maximum intensity being experienced on the instant. When severe it is like a “stroke of lightning,” a “knife” or a “red-hot needle” plunged through the heart. One young man was felled instantly to the floor by it while quietly working in a power station; another while strolling about the hospital where he was convalescing from a respiratory infection; another young man was instantly “crumpled up into a helpless mass” by it while driving an automobile. These major instances of lancinating precordial pain are un-

common; but from them we can descend the scale of intensity through various “stabbing,” “jabbing,” “grabbing” sensations, etc., until we arrive at the trifling “nip” or “stitch in the side” at some time or other experienced by most people. And it is this gradation without variation except in intensity that stamps typical lancinating precordial pain as pseudo-angina. When unassociated with compression sensation, I have never known a case of lancinating pain to result fatally. Seven years ago a doctor, sixty-five years old, experienced without prodromata and without apparent provocation a terrific instantaneous knife-like pain through the precordium and left arm which lasted all night and alarmed me at the time. But he is still in active work and has had no recurrence of pain and has normal physical findings and electrocardiogram. Typically, lancinating pain lasts but a moment, though it is often succeeded, if severe, by a dull ache. While it lasts the subject usually holds the breath, feeling, as one expressed himself, that “If I breathed it would tear me in two.” Ordinarily far apart, the paroxysms may come in groups. One of my patients and one reported by Thomas Lewis described feeling something “like an electric shock” with each heart beat for hours at a time, starting from the region of the cardiac apex and instantly passing up and into the left arm and out the finger tips.

After these two distinctive types of pain comes a miscellaneous group of dull aches, sore, or burning feelings, etc., which may alternate with the compression pain of angina, but are more common in pseudo-angina. Terrific or simply “awful” indescribable pain in the chest is always threatening. In coronary thrombosis it is perhaps even more common than typical compression pain.

2. *Factors which precipitate or relieve attacks* come next in importance in differential diagnosis. The pain of coronary blockage, though often appearing in sleep or after a full meal, as a rule has no recognizable precipitating cause. It is comparatively of long duration, is little if at all affected by nitrites and often requires large doses of morphin for relief. With this exception, true angina pain is practically always precipitated by some well-defined circumstance or train of circumstances. Here, however, the uniformity ends. Almost every patient has his idiosyncrasies. The classical precipitant is walking up hill against the wind after a meal. Some go about freely on a warm quiet day, but cannot stand facing a cool breeze without having pain. One of my patients with syphilitic aortitis and valvulitis who could chop wood at mid-day could not so much as step out of his door in the morning or evening. A drink of cold water would give him an attack. Another with the same syphilitic lesion would be held up by pain while sauntering on a warm day to the beach, and would then enter the cold water and swim vigorously with no discomfort whatsoever. Another man with nonsyphilitic aortitis cannot take a hot drink. He is a retired engineer,

and it is his hobby to prepare graphs of his pain threshold for varying temperature of drinks at different times of day. Some have attacks from emotion rather than physical exertion; some from use of certain muscles, especially the left arm; some merely from palpating the precordium. The physiological alterations in sleep are little understood but are often important in angina, and the waking hour is a critical one for many patients. Nocturnal attacks are usually of ill omen.

Now from angina patients these precipitating factors as a rule are elicited with little or no direct questioning. Not so with pseudo-angina patients. They will often deny any association of pain with meals, exercise, excitement, etc.; or if such a relationship is claimed it will probably be found to be a delayed one. After a hard day they may have pain while quietly resting that evening or the next day. Pseudo-angina may, however, follow close on the heels of a family row for example.

Relief of pain following discontinuance of the exciting cause is a valuable point in favor of angina. Vasodilators as a rule relieve angina, except in coronary thrombosis. They have much less effect on pseudo-angina. Lancinating pain rarely lasts long enough for any remedy to be tried.

3. *Topography of the pain* is less valuable in differentiation than is often supposed. Contrary to a widespread preconception true angina is much more commonly, and as originally described by Heberden, substernal; while false angina is usually precordial. True anginal pain has usually a very blurred delimiting outline in the chest, the patient often indicating location vaguely by a wave of the hand; though when it passes on to the arm, neck, etc., the pain outlines are often sharp. Pseudo-angina dull pain may be hazy in outline, but is more often fairly sharp. Lancinating pain, in particular, is usually indicated by the patient as a definite point or streak, which, however, may vary in different attacks (sometimes the same thing occurs in the right chest and occasionally in remote parts of the body). It is interesting that when patients describe such a streak of pain it is not along the course of any nerve, but is from the central or lower precordia upward toward the shoulder, straight through to the back, or diagonally up and across the sternum, etc.

In general, pseudo-anginal pain radiates less commonly than anginal, but not infrequently it extends into the typical left arm distribution. Radiation in angina is usual and is quite bizarre. Instead of the left ulnar distribution it may go only to the right arm, or to both arms, the back, neck, jaw, or occiput. Osler described a radiation to the left testis. One must at times recognize angina with pain only at the area of pain reference. One of my patients who had syphilitic aorta and heart had only stinging effort pain in both wrists; another, a doctor, began having his teeth

pulled because of effort pain limited to the left jaw but which later began in the chest and radiated to the jaw.

Abdominal angina is not to be forgotten. Deaths described in the newspapers as caused by "ptomaine poisoning" or "acute indigestion" are usually of this sort. Especially to be remembered is the occasional case of coronary thrombosis with epigastric pain, tenderness and rigidity, together with fever and leukocytosis. Pericardial friction may establish the diagnosis, or it may be determined by careful observation of the pulse and electrocardiogram.

4. The *psychic state and various other associated phenomena* of the attacks are to be considered. Pallor and immobility during attacks and salivation and polyuria afterward are more characteristic of angina. Flushing of the face and a demonstrative behavior are more like false angina. In the angina attack there may be a sense of suffocation, with natural or suppressed breathing, or the patient may expand the chest in the effort to get relief. In pseudo-angina, especially with lancinating pain, the breathing is more often held within shallow limits for fear of increasing the pain. In either condition the heart rate may be retarded or accelerated, the pulse strong or weak, the blood pressure higher, lower or unchanged.

Skin tenderness for hours or days is common after a severe attack of angina; it may be acute over the precordium or the area of pain reference or both. It is also common in cases of pseudo-angina, but here is more often limited to the region of the heart apex, and is rather less closely connected with the attacks. Many pseudo-angina patients describe habitual sensitiveness below the left nipple, which may not be so much actual tenderness as vague discomfort produced by even the contact of clothing. Aversion to lying on the left side (occasionally it is the right side) on account of pain, heart consciousness, smothering sensations, etc., is much more characteristic of the nervous group.

The textbook "angor animi," the paralyzing sense of impending dissolution, when it occurs, is a warning that no physician will fail to heed. But if he waits for this signal to establish the diagnosis he will miss most of the cases. On the other hand, many of the most badly frightened people I have seen were clearly suffering pseudo-angina; and, whereas typically their state of mind is supposed to be a fear that they may have angina rather than the simple conviction of doom, in practice it is often hard to draw so sharp a distinction. I would go so far as to characterize reliance on this fear symptom as positively dangerous. The principal object of diagnosis is therapy; and there are few instances where failure of diagnosis may more seriously jeopardize the success of treatment. For when the physician, overimpressed by the fear of the sufferer from pseudo-angina, takes the view that it is or that

it may be the real thing, he will almost certainly fail to administer the all-important convincing reassurance, and the chains of neurosis will be welded.

490 Post Street.

DISCUSSION

WILLIAM DOCK, M. D. (Stanford University Hospital, San Francisco).—This journal has recently had an unusually good series of papers on angina pectoris, including those of Doctors J. M. Read and W. S. Thayer. Doctor Kilgore's paper rounds out this series very well, and, so far as his conclusions upon diagnosis and treatment are concerned, I have nothing to add. There is apparent throughout this recent series considerable difference of opinion as to terms, but agreement as to facts. I should differ with Doctor Kilgore on terms. I prefer to think of angina pectoris as that type of heart distress, never associated with dyspnea of the panting type which was described by Heberden. I, therefore, do not make the diagnosis if some other cause for the precordial pain is evident—that is, if the patient has coronary occlusion, paroxysmal tachycardia, or merely palpitation and "heart consciousness." Pseudo-angina seems to me as poor a term as "pseudo-epilepsy" or "pseudo-tuberculosis." In atypical cases there will be greater uniformity of diagnosis of angina pectoris by experienced physicians than there will be in cases of pulmonary tuberculosis. The practice of lumping all precordial pain into the groups "angina" and "pseudo-angina," though supported by men as expert as Sir James Mackenzie and Doctor Kilgore, leaves much to be desired.



T. HOMER COFFEN, M. D. (707 Stevens Building, Portland, Oregon).—Since Osler's Lumleian lectures on angina in 1910, Herrick's paper on coronary thrombosis in 1911 and Allbut's discussion of anginal pain in 1915, medical literature has shown increasing volume on this subject. Naturally, in differentiating angina from other conditions which simulate it, there has been much discussion, and certain underlying causes stand out as definite entities, such as coronary thrombosis. Some cases of precordial pain lead one to a certain feeling of assurance in assuming that coronary sclerosis is present, especially if peripheral arteries are thickened and if the aorta is increased in density or widened under the fluoroscope. In fact there has been a distinct tendency in the last few years to consider angina synonymous with underlying disease of the coronary arteries, though Dr. Thomas McRae's recent paper sounded the warning that certain cases with anginal symptoms have no coronary disease. One must not overlook the fact that some cases of real angina have masked symptoms. For instance, not a few of my patients have had symptoms entirely referred to the epigastrium and lower sternum. The recent work of Whitten and Barnes seems to show that further correlation of clinical knowledge with that obtained at the autopsy table may enable us to recognize right and left coronary occlusion. I suggest that we consider angina or the anginal syndrome, a general term of which coronary thrombosis, coronary sclerosis or spasm are varieties.

It is certainly true that if we review the histories of a few hundred people who have consulted us regarding precordial pain we find between 30 to 40 per cent in whom we eliminate angina as a causative factor; they fall in the group to which Doctor Kilgore refers as false angina. The etiology of these cases has been well discussed by him. In diagnosis I agree with him that the history is important. A therapeutic test which I occasionally use is nitroglycerin for the attack. That certain people are sensitive to tobacco, "tobacco angina," has been demonstrated by instances in my own experience of men, usually young, who have found that tobacco precipitates precordial pain. Physical and laboratory examinations show no abnormalities in these patients.

DONALD J. FRICK, M. D. (1136 West Sixth Street, Los Angeles).—Doctor Kilgore, in his paper on "Angina and Other Precordial Pain," tersely covered his subject in a most satisfying manner. What I have to say is at the same time irrelevant and pertinent.

Many of us have long felt the undesirability of the term "angina pectoris." It has formed a diagnostic scrap-basket; one of those generic names which suggests so much, yet specifies so little. It would be as appropriate to use the term "angina abdominis" for reflex pain due to renal colic, mesenteric thrombosis, or visceral perforation.

Of late years we have found hidden under the inclusive term (angina pectoris) a number of distinct pathologic conditions involving the heart, the great vessels and other thoracic organs. The retention of this title hinders the thorough sifting and classification of these various conditions. Accepted as a cause of death, it nullifies vital statistics in heart disease.

If this term could be discarded in our generation, what a boon it would be to the laity of the future. Without this diagnostic smoke screen, search for the cause of chest pain would be more thorough and treatment more intelligent. Then, too, the victim of precordial pain might be spared the casual diagnosis and the persistent fear that follows in its wake. A fear reborn with every news item of sudden death from angina pectoris. A fear that is present from the first mention of the term to the end of the patient's life.

The patient could be told he had intercostal neuritis, if that were true, and the heart be left out of the discussion. In another instance, coronary thrombosis could be explained and the wisdom of rest and future caution in activity pointed out. In neither case would this much dreaded term be mentioned, and the patient would live out his life in reasonable peace of mind.

It is, then, for the sake of the patient and the physician, with peace for the former and scientific advancement for the latter, that angina pectoris should be thrown in the discard.



DOCTOR KILGORE (Closing).—In view of most modern utterances on the terminology, I was expecting the attack on pseudo-angina, but not Doctor Frick's repudiation of even the time-honored angina pectoris. Certainly both terms should be replaced by names designating specific morphologic changes or functional mechanisms deviating from normal, *if we could do so confidently in all, or even in most cases*. But I cannot do that, and so I do not share Doctor Frick's optimism that the average doctor can do it and that he would better our vital statistics by trying to do it. It is as often the exception as the rule that I can predict with assurance and with success the necropsy findings in undoubted cases of angina; and far less can I give a convincing explanation morphologically or functionally of the cases to which I refer as pseudo-angina. They are not tabes, pleurisy, herpes, and the like. And the use of such terms as "intercostal neuritis" is a gesture of knowledge with a conviction of ignorance. The name "pseudo-angina" frankly connotes our ignorance of mechanism, while it affirms the all-important distinction from angina, and, therefore, when understood should give the maximum protection against anxiety neurosis. Yes, one could even approve of Doctor Dock's "pseudo-tuberculosis" if the situation were in the least degree comparable, i. e., if tuberculosis were a symptom complex instead of a specific infection, and if its imitators were so ill identified and appeared under so many aliases as those of angina. However, we should all agree that the terminology is of secondary importance. The real task is the diagnostic one of separating the pain with a threat from the one without it, and in this task in actual practice there is happily less disagreement.

GLUCOSE PER RECTUM—EVIDENCE OF NON-ABSORBABILITY*

By BERTNARD SMITH, M. D.
Los Angeles

DISCUSSION by Clarence G. Toland, M. D., Los Angeles;
Robertson Ward, M. D., San Francisco.

THE administration of glucose per rectum is a common therapeutic procedure, especially as a part of postoperative treatment and when oral feeding is difficult or impossible. The glucose is usually given by the drip method or, at a faster rate, in the form of nutrient enemata. An isotonic solution of the sugar is usually given by drip, but with the glucose enema the concentration of the sugar is often much higher. Very little thought has been given to the effectiveness of such therapy, whatever has been the technique used or strength of glucose solution injected.

REVIEW OF EARLY EXPERIMENTAL STUDIES

A few of the earlier experimental studies on the absorbability of glucose from the rectum and colon are of interest because of the boldness with which conclusions are drawn. In 1902 Reach¹ reported slight increase in respiratory quotient after rectal injections of glucose, and concluded that some sugar was absorbed. Hari and Halasz² reported studies on dogs after separation of the large and small bowel by ligation. Their studies also show a slight rise in respiratory quotient and they state that an actual glycosuria may follow the rectal injection of glucose. Ornstein,³ in a series of experiments on dogs, also concluded that some sugar was absorbed after rectal injection, and believed that glucose given with starch is completely absorbed.

Nagel⁴ refers to the studies on patients reported by Czerny and Latschenberger, and to the experimental studies on dogs by Heile, as proof that glucose may be absorbed from the rectum and colon. More recently, Tallerman⁵ has reported observations on human subjects who were free of demonstrable rectal pathology. A solution of 180 cubic centimeters of normal saline, containing 60 grams of glucose, was instilled into the rectum in ten minutes and the effect studied by blood sugar analyses. Within thirty to ninety minutes after the injection was completed, the blood sugar showed a slight rise, with a maximum rise of 0.062 per cent, and an average increase of 0.019 per cent. He concluded from these results that some glucose was absorbed.

Diabetic patients will show a marked variation in the readiness with which liver glycogen may become mobilized in response to nervous stimulation and to mechanical pressure change in the intestinal tract. The sensitive patient can show a slight blood sugar rise from the insertion of the rectal tube, with later and more marked increase in the blood sugar if the amount of solution introduced into the rectum is sufficient to cause

pressure within the lumen of the gut. Such increases in the blood sugar do not indicate, necessarily, that glucose is absorbed. In fact, slight increases may appear in blood sugar when distilled water or simple saline solution are injected into the rectum in small amounts. The very slight increases in respiratory quotient that have been reported might be influenced by the reversal change to glycogen synthesis that could follow the increases in blood sugar from stimulation. Brodie⁶ and his collaborators report that distilled water instilled into the bowel will cause increased oxygen consumption.

LATER REPORTS

Rubino and Varela⁷ in 1922 reported studies on normal human subjects, using rectal injections in varying strengths of glucose, levulose and galactose, and found no sufficient increase in blood sugar to indicate absorption. Franke and Wagner⁸ studied blood-sugar curves of dogs after rectal injections of 25 grams of glucose in a 25 per cent solution and found no actual evidence of sugar absorption. Levi⁹ studied the effects of rectal injections, using 500 cubic centimeters of glucose solution, ranging in strength from 10 to 16 per cent, with human subjects that included normals, diabetic patients and postoperative cases. Four of the eight diabetic patients studied showed no early rise in the blood-sugar curves. All of the diabetic patients showed a decrease in blood sugar after the first thirty minutes following the injection, with an average decrease at the end of two hours of 29 milligrams below the level of the fasting blood sugar. Levi concludes that at best only very small amounts of glucose are absorbed from the colon.

McNealy and Willems,¹⁰ in a recent report, show the results of studies on fifteen dogs with isotonic glucose solution. Loops of ileum and of colon were isolated from the remaining bowel. After washing both loops with saline solution, from 50 to 75 cubic centimeters of five per cent glucose solution were injected. The sugar solution was allowed to remain in both loops for thirty minutes, after which the loops were drained and washed with saline. Then glucose of the same value and strength was again injected and retained for one hour. The sugar solution was again drained off and the loops washed and estimations made of the amount of sugar and the volume of solution recovered. The data obtained shows the full recovery of all glucose injected into the colon loop, with a possible error of 50 to 100 milligrams, and an absorption of a small amount of liquid. From the ileum loop both glucose and water were absorbed.

Pressman,¹¹ in the last month, has published studies on seven human subjects. He has used a hypertonic glucose solution of 33 1/3 per cent strength, injecting 240 cubic centimeters into the rectum in a ten-minute period, and studied the blood-sugar curves for the succeeding four hours. None of the blood-sugar curves of his series show

* Read before the General Surgery Section of the California Medical Association at the fifty-ninth annual session at Del Monte, April 28 to May 1, 1930.

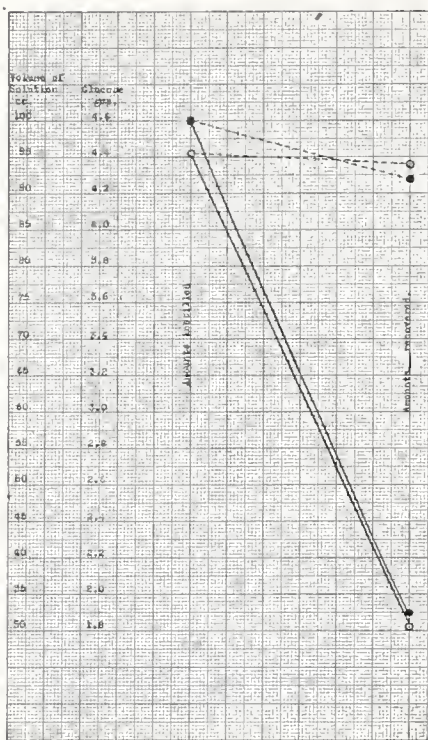


Chart 1.—Absorption of liquid and glucose from ileum and colon (McNealy and Willems).
●—● Solution in cubic centimeters. Ileum.
●---● Solution in cubic centimeters. Colon.
○—○ Glucose in grams. Ileum.
○---○ Glucose in grams. Colon.
The difference in values between first and final figures represent the totals of liquid and glucose unrecovered from ileum and colon.

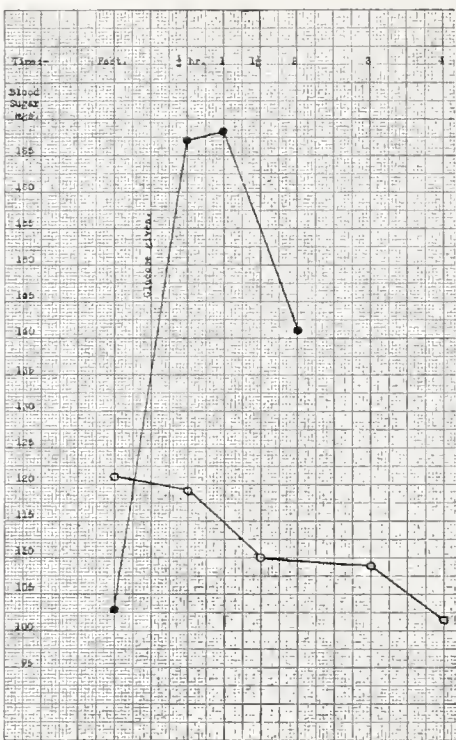


Chart 2.—Blood-sugar changes following the administration of 80 grams of glucose by mouth and by rectum (Pressman).
● Glucose given by mouth.
○ Glucose given by rectum.

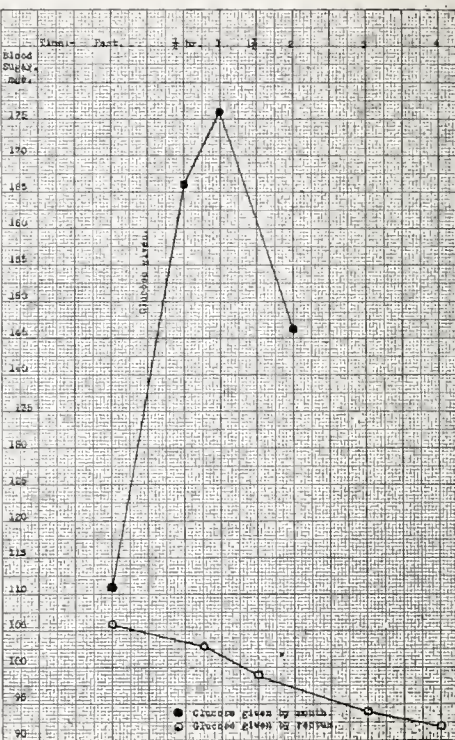


Chart 3.—Blood-sugar changes following the administration of 80 grams of glucose by mouth and by rectum (Pressman).
● Glucose given by mouth.
○ Glucose given by rectum.

definite evidence of glucose absorption and, in each case, the blood sugar value at the ninety-minute period after glucose injection is at, or below, the level of the fasting blood sugar value. Pressman also shows the recovery from stool fol-

lowing the glucose enema of an average of 24 per cent of the total sugar injected, with the high value of 42 per cent in one instance after the sugar had been retained in the bowel four hours. Implantation tests of glucose and stool mixtures showed the loss of 90 per cent of the glucose through the activity of intestinal bacteria.

The studies that have been cited furnish evidence that if any absorption of glucose occurs

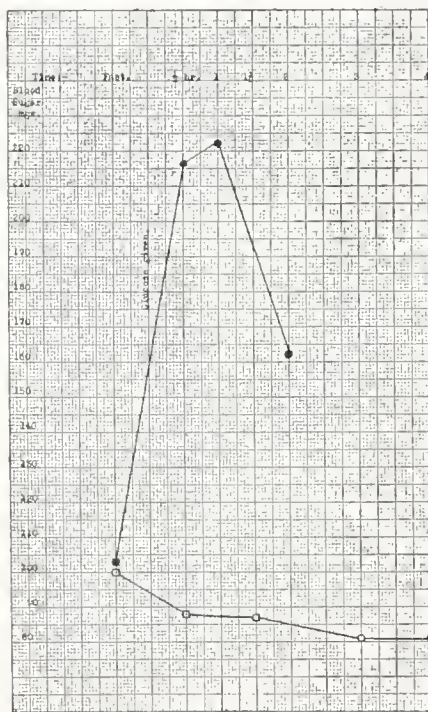


Chart 4.—Blood-sugar changes following administration of glucose by mouth and by rectum.
● Glucose given by mouth.
○ Glucose given by rectum.

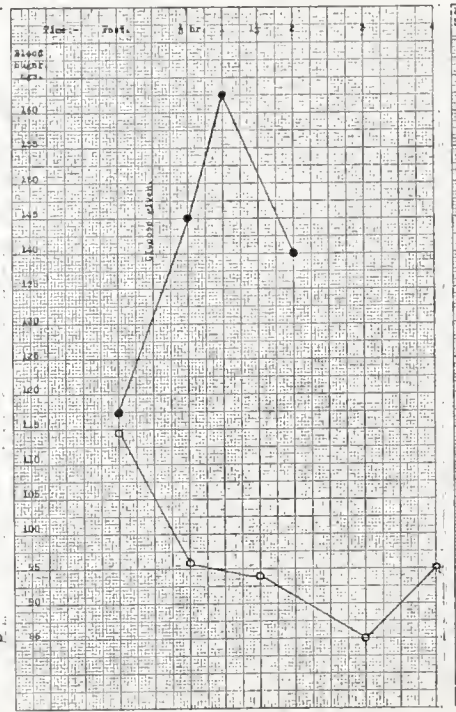


Chart 5.—Blood-sugar changes following administration of glucose by mouth and by rectum (Pressman).
● Glucose given by mouth.
○ Glucose given by rectum.

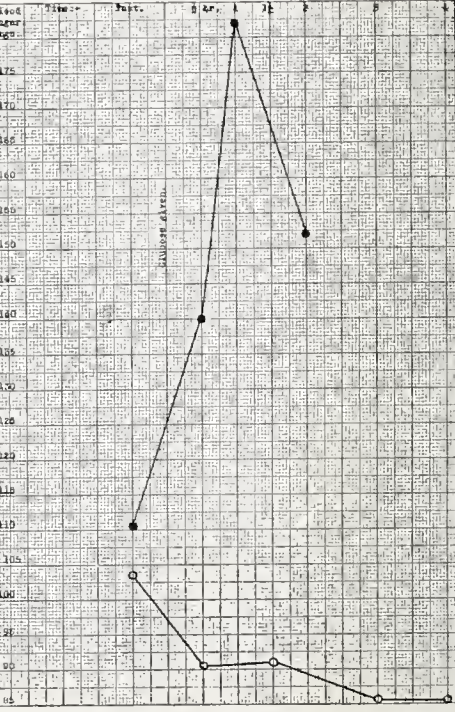


Chart 6.—Blood-sugar changes following administration of glucose by mouth and by rectum (Pressman).
● Glucose given by mouth.
○ Glucose given by rectum.

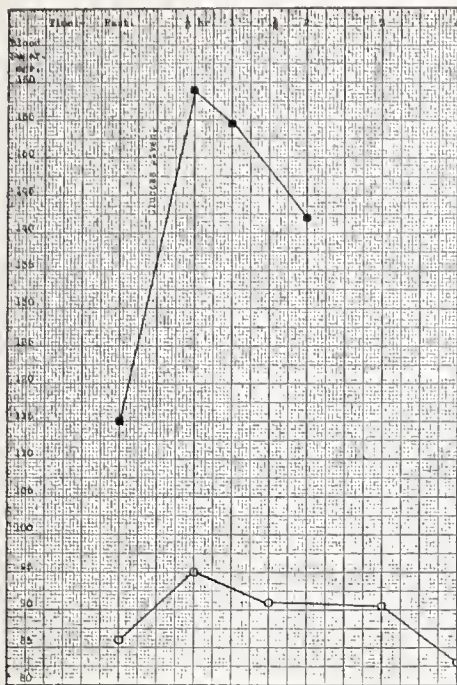


Chart 7.—Blood-sugar changes following administration of glucose by mouth and by rectum (Pressman).
● Glucose given by mouth.
○ Glucose given by rectum.

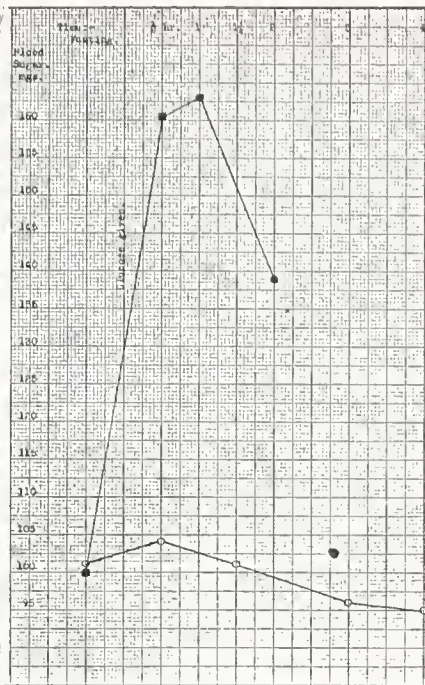


Chart 8.—Blood-sugar changes following administration of glucose by mouth and by rectum. Data of reaction to glucose by rectum compiled from reports of Levi, Tallerman, and Pressman.
● One and five-tenths grams of glucose per kilogram. Given by mouth. Average of twenty-five cases.
○ Eighty grams of glucose given by rectum. Average of twenty-four cases.

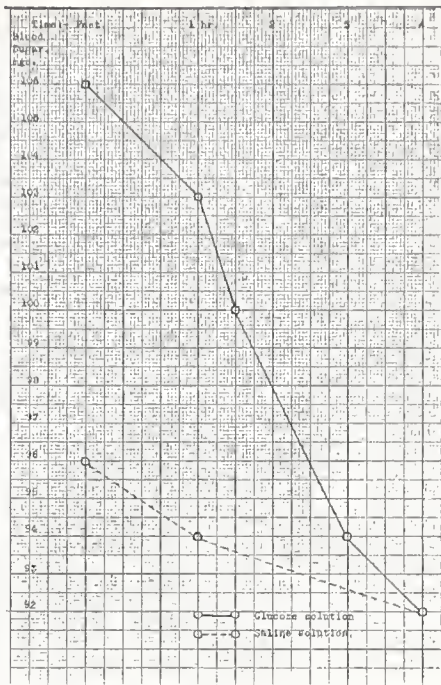


Chart 9.—Blood-sugar curves following enema of 80 grams of glucose in 250 cubic centimeters of water, and after saline enema (Pressman).

from the rectum and colon the amount is so small a fraction as to be of no therapeutic value either for nutritional need or as a means of preventing or overcoming any disturbance of acid-base balance. The evidence that even a small part of the injected glucose is absorbed is still inconclusive, whether an isotonic or hypertonic solution is used, since the reported increases in blood sugar and respiratory quotient are too slight to be definite proof of additional glucose intake. Cannon¹² in 1902 stated that there was little or no absorption from solutions in the colon or rectum, and his opinion would appear to be sound as pertains to solutions of glucose.

While there does appear to be some absorption of liquids from the lower bowel, the report of McNealy and Willems¹⁰ gives evidence that in isotonic glucose solutions the amount of liquids absorbed is insignificant. There is the possibility, as evidenced from these findings, that glucose may act in the bowel much the same as a salt that is absorbed to but little or no degree, when the salt is the main factor in exerting osmotic pressure.¹³ The effort to bring about osmotic equilibrium might result in a reversal of fluid flow into the bowel lumen and result in an increase, rather than a correction, of an existing dehydration of the body tissues.

The experimental data shows that the blood sugar can be decreased by the instillation of glucose in any strength of solution into the lower bowel. It is possible to bring about a degree of hypoglycemia in this way in the more sensitive

patient that would be sufficient to lower both blood pressure and blood volume, or disturb the acid-base balance similar to that seen in overdosage of insulin in diabetes, with a sharp shift to an alkalosis. Such circulatory disturbance, without an associated chemical imbalance, may complicate and prolong postoperative convalescence. We must bear in mind that normal wound healing depends on adequate blood supply and that this blood supply is influenced by existing subnormal values of certain items in blood chemistry as well as by values that are increased to a marked excess over the requisite normal.

1930 Wilshire Boulevard.

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DISCUSSION

CLARENCE G. TOLAND, M. D. (1930 Wilshire Boulevard, Los Angeles).—The final test in any therapeutic procedure is its clinical efficacy, and Doctor Smith's paper has presented grave evidence against a time-honored practice.

For years the use of glucose by rectal drip has been an accepted routine treatment for any condition with actual or threatened acidosis where oral administration is impossible.

More recently, the suspicion has grown that the results were negligible and this paper seems to crystallize such suspicions into actual proof. We have not used glucose by rectum for several years. The amount that could be retained in twenty-four hours amounted to but 100 to 150 grams, and we were not convinced it was absorbed.

Alone it usually failed completely to reduce an existing acidosis. Then, too, we found a certain number of patients complaining of rectal irritation, possibly analogous to the pruritus occurring in the genital organs in diabetes. We accordingly have given glucose when needed by vein and restricted rectal drip to normal saline.

An additional point of interest suggested by the paper is this: the possibility that glucose by rectum actually may inhibit the utilization of glucose given coincidentally by vein. Doctor Smith suggests that there is little absorption from the bowel of liquid with glucose in solution and that existing dehydration of the body actually may be increased by attraction of fluid into the bowel lumen.

Ravdin has shown that dehydration definitely impairs the ability of the liver to remove glucose from the blood stream. For this reason he advises the use of glucose intravenously in either an isotonic or slightly hypertonic solution given slowly, or if given in the usual concentrated 50 per cent solution, to give abundant saline solution to overcome dehydration. The use of the more easily absorbed normal saline by rectum thus facilitates the utilization of glucose given by vein and the use of glucose by rectum inhibits it.

The failure clinically of patients to respond to the use of glucose by rectum, coupled with the experimental evidence given by Doctor Smith, convinces us that the use of glucose by rectum is a therapeutic measure of little value and well worth abandoning.



ROBERTSON WARD, M. D. (384 Post Street, San Francisco).—As Doctor Smith points out, the administration of glucose solutions by rectum is a common therapeutic procedure. It is far too common. It is analagous to draining the abdominal cavity. These two procedures are so similarly misused that a comparison is worth while. Both have the weight of precedence behind them, both fail to accomplish what we hope for them, and both actually do harm.

It is difficult enough to make the medical profession take up new things of real value and almost impossible to make them drop the time-honored but thoroughly exploded therapeutic pets of their grandfathers. We have all administered glucose by rectum with the feeling that though it might not furnish a readily available fuel to the system, it would at least do no harm. The excellent work of Pressman and others, which has been reviewed by Doctor Smith, gives ample evidence that the glucose is not made available to the system and shows as well that it does exactly what we plan to avoid, it lowers the blood sugar, thus taking our much needed fuel out of the circulation. Armed with this evidence it should be easy for us to throw this procedure into the therapeutic junk heap.

From the patient's point of view it is well to emphasize the colon irritation involved in our misguided attempts. A few years ago we made proctoscopic examinations following the administration of various types of solution by rectum. These included normal

salt solution, soap suds and hypertonic solutions of other salts as well as plain water. In all except the normal salt solution, we found signs of mucosal irritation varying from mild edema to punctate hemorrhagic areas. It is logical to conclude that similar results would be obtained with glucose solutions, and in that case it is little short of cruelty to add this burden to the already sick individual.

Doctor Smith is to be thanked for putting before us data which will help push into the discard a procedure of which we have all been suspicious but to which we have clung because handed down with the seal of approval from the generation before.

OBSTRUCTION FOLLOWING GASTRO-ENTEROSTOMY—ITS MECHANICAL FACTORS*

By FRED R. FAIRCHILD, M. D.
Woodland

DISCUSSION by Ernst Gehrels, M. D., San Francisco;
Robertson Ward, M. D., San Francisco.

IT is the purpose of this paper to consider the causes of obstruction following gastro-enterostomy. This complication is still an experience occasionally met by the most competent surgeons and with patients where, immediately following operation, no difficulty was anticipated.

The discussion is based on problems made familiar by personal observation, an experience which we believe is at some time shared by all gastric surgeons. The paper is limited to a consideration of those postoperative obstructions which come by reason of mechanical causes only.

POSTOPERATIVE COMPLICATIONS

The usual result obtained by gastro-enterostomy, as a cure for peptic ulcer, is all that could be desired. It is unfortunate that this statement must be qualified by "usual." But the truth is that sometimes the postoperative outlook is not happy. At infrequent intervals the train of symptoms, which we have come to recognize as obstructive, follows our work. It is a fact recognized by gastric surgeons that this complication occurs most frequently in the thin, asthenic subject, who would seem to present the minimum of technical difficulty. The stout individual with the high, transverse stomach, which is with difficulty brought into position for operation, rarely gives cause for postoperative apprehension. These observations are significant.

It is instructive to note the similarity in the untoward postoperative symptoms which have occasionally followed from the time of the first short circuits of stomach and bowel. As we follow the evolution of this operation we are impressed with the fact that many of the changes in technique were calculated to correct complications that were anticipated, rather than to prevent their occurrence. We believe that the frequent postoperative complications following the work of the pioneers in gastric surgery were not different in

* From the Department of Surgery, Woodland Clinic, Woodland.

* Read before the meeting of the Nevada State Medical Association held in Elko September 27 and 28, 1929.

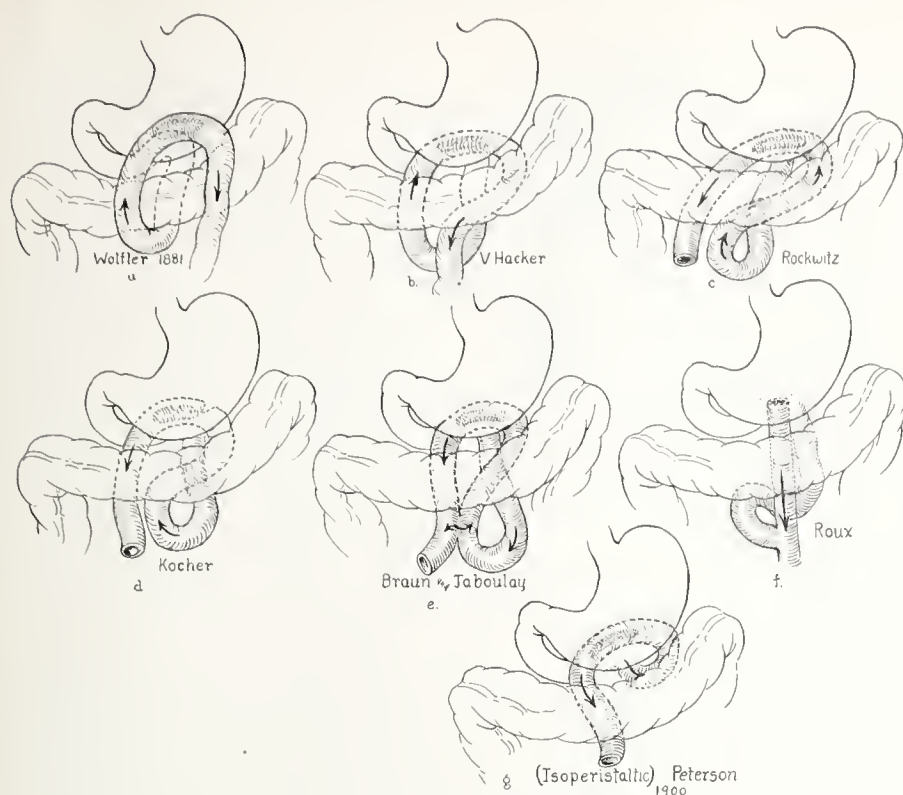


Fig. 1.—(a) Wolfer's long loop anterior gastro-enterostomy. (b) V. Hacker's long loop posterior isoperistaltic gastro-enterostomy. (c) Rockwitz's long loop posterior isoperistaltic gastro-enterostomy. (d) Kocher's valve operation added to Rockwitz's gastro-enterostomy. (e) Braun and Jaboulay's anastomosis of afferent and efferent loop. (f) Roux's Y operation. (g) Peterson's short loop isoperistaltic posterior gastro-enterostomy.

cause from the occasional postoperative complication that we ourselves encounter. They were probably dealing with true obstruction, but attempting to explain the symptoms on a physiological rather than on a mechanical basis. With this thought in mind it will be profitable to make a very hasty survey of the steps in the development of the operation.

DEVELOPMENT OF DIFFERENT SURGICAL PROCEDURES

Wolfer with Nicaladoni did the first gastro-intestinal short circuit in 1881. The procedure shortly became fairly general, but vomiting, regurgitant, profuse and often fatal, was a common postoperative complication. The earlier operations were all done with a long, proximal loop, placed anteriorly. (Fig. 1, a.)

Von Hacker thought to avoid the unsatisfactory postoperative sequence, which so often followed, by placing the opening in the posterior aspect of the stomach. He also used the long loop. Little, if any, improvement followed the changed technique (Fig. 1, b.)

Rockwitz believing, as did his contemporaries, that the failure of the first portion of the bowel to function was due to a physiological cause—inability of the peristaltic wave

to pass from stomach over the stoma and down the efferent loop—Rockwitz, in 1887, suggested an isoperistaltic opening as logical. In effect the application of this suggestion was nil. (Fig. 1, c.)

Then came Kocher's valve operation, still based on a misconception of the fundamental difficulty. By his valve formation in the distal portion of the lumen of the efferent loop he thought to prevent regurgitation; this procedure had no beneficial effect. (Fig. 1, d.)

Braun and Jaboulay, like Kocher, recognizing a symptom but misinterpreting the cause, made a suggestion for the correction of the "vicious circle," as the unfortunate postoperative syndrome had come to be known. They anastomosed the afferent and efferent jejunal loops, which procedure, if it did nothing more, gave relief from the symptoms of acute obstruction.

If the obstruction chanced to be at the stoma on the afferent loop side, it should have given good results. If the obstruction chanced to be at the stoma on the efferent loop side, the operation at best could have meant no more than relief of the obstruction and restoration of the original pre-operative condition. (Fig. 1, e.)

Roux's "Y" operation was ingenious and simple. It was a distinct advance and, from a mechanical standpoint, would seem to be an operation less liable to postoperative complication than even our generally accepted, short-loop, posterior gastro-enterostomy. But for one thing it might still be the favored operation. This one weakness is generally considered to be fundamental. By this

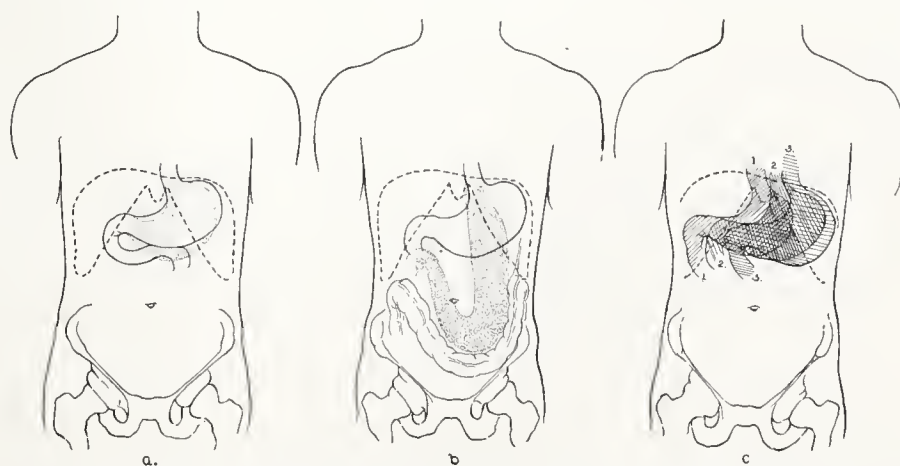


Fig. 2.—(a) Illustrating little variation in position of stomach with one type of individual. (b) Illustrating extreme variation in position of stomach in another type of individual. (c) Illustrating lateral variations in stomach with different individuals.

technique, the bile is delivered to the jejunum below the stomach. The operation does not, therefore, result in the alkalization of the gastric fluids. If such change in chemistry is, as many believe, the prime factor in the healing of peptic ulcers following gastro-enterostomy, the procedure is condemned. (Fig. 1, f.)

The first no-loop, more properly short-loop, posterior gastro-enterostomy was done by Petersen in 1900. That this was a great step in advance in technique is evidenced by the fact that this procedure is still the operation of choice. Since then the technical modifications have been minor. Mayo has contended, and experience seems to have proved, that an isoperistaltic opening has no consistent advantage over a retroperistaltic opening. Moynihan has felt that a vertical stoma functions better than a transverse one. Arguments have been presented by different men favoring the opening in various parts of the stomach; toward the cardia; toward the pylorus; higher up posteriorly and at the most dependent portion. There is no unanimity of opinion that any of these procedures has a material advantage over the others. (Fig. 1, g.)

MECHANICAL BASIS OF CERTAIN COMPLICATIONS

The experience of later years has taught us that the complications which we are discussing are not to be explained on any physiological basis, but that they are truly mechanical. The new opening does not function because of obstruction. And obstruction may occur whether the stoma is anterior or posterior, whether the loop is long or short, whether the opening is iso- or retroperistaltic, large or small, whether it be placed at the most dependent portion of the stomach or higher in the wall, or whether it be in the cardiac or pyloric end of the stomach. All of these variations have been advocated by surgeons of wide experience. The operation with any of the modifications has been and still is satisfactory in results except for the occasional case. The complication—obstruction—still with all sometimes occurs. In just what percentage ratio under the different methods, it is not possible to say.

But that it does occur would seem to indicate



Fig. 3.—(a) Course of duodenum upward and to the left. (b) Course of duodenum downward and to the left. (c) Long mesentery for first portion of jejunum. (d) Short mesentery for first portion of jejunum.

a cause not peculiar to any technique. It is our feeling that it may be due to the attempted application of a fairly well standardized method to individuals of marked physical variations. Let us consider, then, those anatomical differences in individuals that are of sufficient importance to necessitate modifications in the operation.

There are three structures that are concerned directly in every gastro-enterostomy—the stomach, the first portion of the jejunum, and the transverse mesocolon. In health their positions in the abdomen vary greatly and their relative positions for different individuals may be quite dissimilar.

The roentgen ray has taught us that the stomach in a stout, well-muscled person may be high in the abdomen and in a transverse position. Its relation to other abdominal viscera varies little whether the owner assumes a horizontal or a vertical posture (Fig. 2, a). In the thin, asthenic person the picture is altogether different. The stomach in this case will often be found to be an

organ that, with different positions of the body, has greatly changed relations to other abdominal structures. In reclining, it may be high and transverse. On sitting or standing, it may drop until a considerable portion of the viscus is in the pelvis (Fig. 2, b). Likewise we have learned to recognize that marked lateral variations from the median line are to be expected. The major portion of the stomach may be to the right or to the left (Fig. 2, c). For the individual none of these variations is a cause for symptoms. For that person the condition is normal.

The jejunum, like the stomach, varies in characteristics. Its proximal portion is fixed as it enters the greater abdominal cavity under the ligament of Treitz. The fixed portion is subject to a considerable variation, vertically as well as horizontal. The direction of the bowel at this position is roughly from left to right, but it may be from right to left and markedly upward (Fig. 3, a), or downward (Fig. 3, b). The mesentery of the jejunum may in one person be long at the very beginning of the organ, permitting the first portion of the jejunum to come sharply forward and assume naturally almost any position in which it may be placed (Fig. 3, c). In another individual the mesentery may be short, denying to this portion of the jejunum any great choice of position (Fig. 3, d).

The transverse mesocolon likewise has its individual characteristics. It is apt to resemble its owner in being short and very fat (Fig. 4, a), or long and very thin (Fig. 4, b), and by reason of these dissimilarities the technique will have to be altered.

With the normal variations of the three structures in mind, which enter into the mechanics of every gastro-enterostomy, we are in a position to discuss the modifications in the technique that these variations may compel.

Attention was called to the fact that before operation the relative positions of the structures in an individual may vary greatly and normally from different factors, the most marked change of course being due to gravity, as the position of the body is altered. Postoperatively the positions of these three structures are subject to little relative variations. The efferent loop of the jejunum is fixed at its proximal extremity by nature; it becomes fixed at its distal extremity to the stomach by suture. The transverse mesocolon is fixed normally at its point of origin from the posterior aspect of the abdominal cavity. Postoperatively the margins of the opening through it are sutured

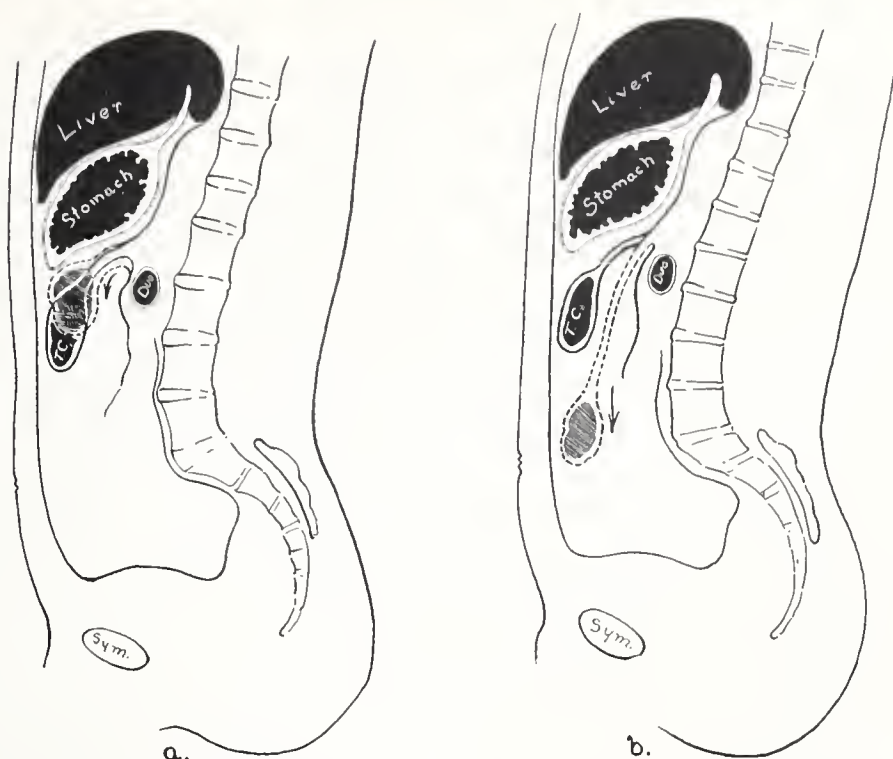


Fig. 4.—(a) Relation between the stomach—transverse mesocolon and jejunum in the stout individual. (b) Relations between the stomach—transverse mesocolon and jejunum in the asthenic type of individual.

about the gastro-enterostomy opening. We have, then, a condition in which a portion of the stomach, the afferent loop of the jejunum and the transverse mesocolon are fixed in a relative position to each other, from which position they cannot escape. But only a portion of the stomach is so fixed, namely, that portion to which the jejunum and transverse mesocolon are fastened. The remaining portion of the stomach has not had its mobility impaired.

PRACTICAL APPLICATION OF PREVIOUS OBSERVATIONS

The practical application of these observations is, plainly, that for each gastro-enterostomy the anatomy of the individual must be considered; that a technique entirely satisfactory for one patient may leave postoperative conditions in another inviting obstruction.

Regarding the length of the afferent loop, it seems obvious that this segment of the bowel must be longer or shorter, depending on the subject. The loop that would function perfectly with the high transverse stomach with little mobility would suspend the greatly prolapsed organ at its stoma. The length of the loop is certainly one of the determining factors for a condition in which the relation of the stomach to the jejunum will or will not be a natural one after operation. We must not forget that this length must vary with each individual.

As noted, like the jejunum, the transverse mesocolon has one fixed extremity before operation and a second fixed portion after operation. After the margin in the opening of the mesocolon is closed by suture to the stomach, the stoma must remain in a more or less completely fixed

position in the abdominal cavity, depending on the character of that particular mesocolon and whether the mesocolonic opening has been placed near to the base or near to the periphery. As in a too short afferent jejunal loop, so in a mesenteric opening too near the base a prolapsed stomach would tend to drop on all sides from the suspended stoma (Fig. 5, a), while an opening in this structure near its periphery would increase the radius to such an extent as not to limit the natural excursion of the stomach (Fig. 5, a). It is also obvious that an opening in the transverse mesocolon, if placed too near to its base, or too far to the right or to the left, would hold the stoma in an abnormal and fixed position, causing dysfunction even if every other factor in the operation had been completed in a perfect manner. We would suggest, then, that, rather than to always accept the usual position for the mesocolonic opening, careful consideration should be given to the mechanics of the situation and the opening made near the base or periphery to the right or to the left, according to the demands made by the physical type of the patient (Fig. 5).

As to the question of an iso-versus a retroperistaltic stoma, after the necessity of an isoperistaltic stoma had been very generally accepted, it seems to have been proved that the retroperistaltic method served equally well. May this not mean that the method of choice should be one or the other, depending on the physical characteristics of the individual? We have seen obstructions to one or the other of the loops at the opening, due to angulation. On reopening the abdomen it seemed obvious that, had the intestine been attached to the stomach in the opposite direction, the complication would not have occurred, as the reverse position would have been for that individual a natural one and angulation would have been avoided.

We have observed obstruction caused by the opening in the transverse mesocolon sliding downward over the stoma, resulting in a hernia of one or the other or both loops through the opening. This accident is certainly due to imperfect technique, but there is a factor which makes it not a remote one in probability. It is our opinion that it is of more frequent occurrence than is gener-

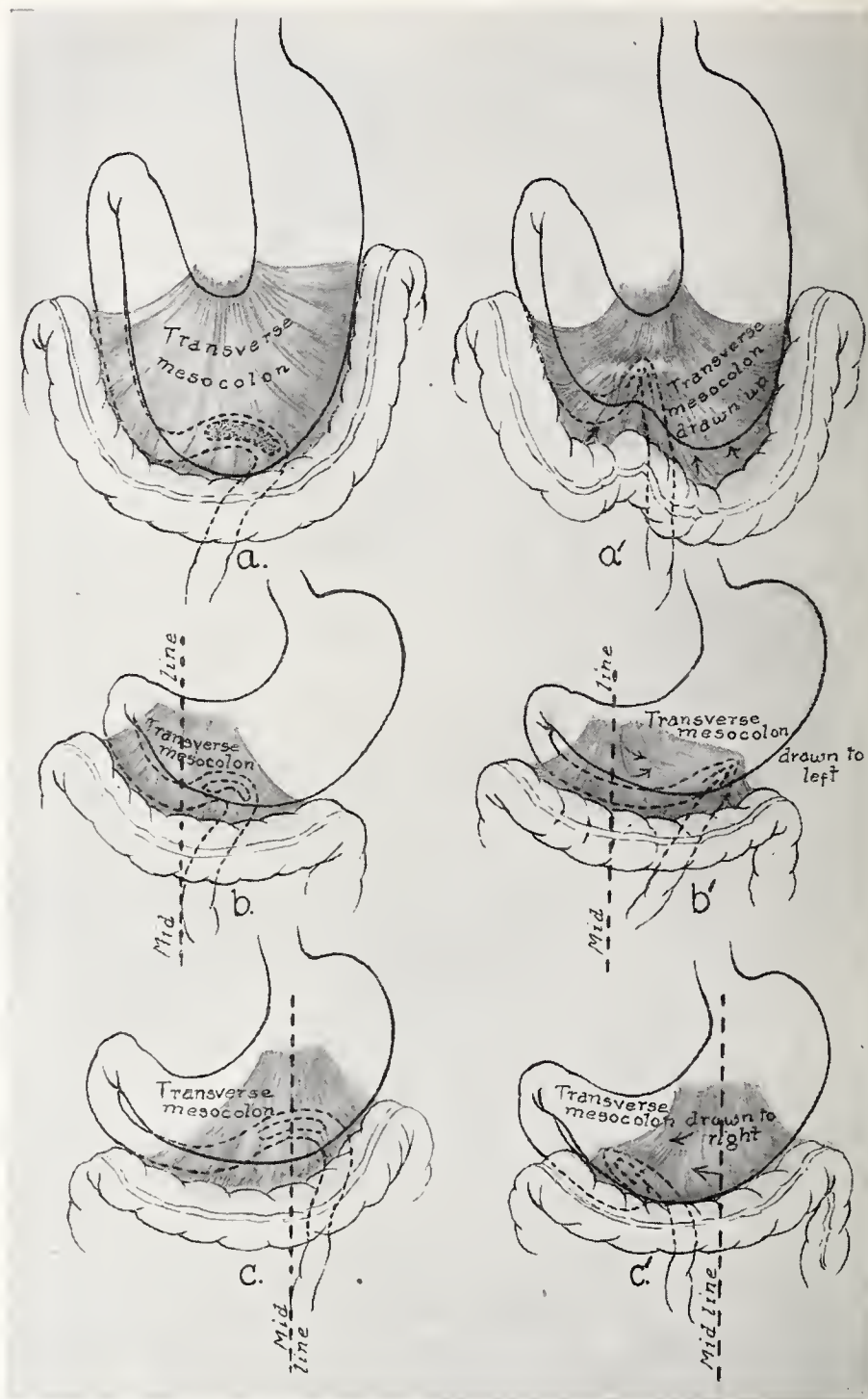


Fig. 5.—(a) Correctly placed opening in transverse mesocolon for a prolapsed stomach. (a') Effect of too high an opening in transverse mesocolon for a prolapsed stomach. (b) Correctly placed opening in transverse mesocolon for a stomach normally placed far to the left. (b') Effect of placing opening in transverse mesocolon too far to left in stomach of this type. (c) Properly placed opening in transverse mesocolon for a stomach normally placed to the right. (c') Effect of placing opening in transverse mesocolon too far to the right in stomach of this type.

ally supposed. In the position of the stomach when the anastomosis is being made (Fig. 6, b) the gastrocolonic omentum is reflected from its gastric attachment upward in front of the stomach. The incision in the stomach is usually near this omental attachment. The anastomosis being completed, the next step in the operation is to attach the anterior half of the margin of the mesocolon forming the mesocolonic opening to the stomach at a greater or lesser distance above the stoma, according to the preference of the surgeon. It frequently happens that on completion of the anastomosis the gastrocolonic omental attachment is very near to the line of suture. Unless care is

exercised the sutures uniting the mesocolon to the stomach will pass through the upward reflected gastrocolic omentum (Fig. 6, b-2). Under these conditions the union of the transverse mesocolon to the stomach will be imperfect and the sutures will be subjected to a considerable strain when the omentum and the transverse colon are placed in the abdominal cavity in the normal position. By reason of this the opening in the mesocolon is apt to be drawn downward over the stoma in such manner as to obstruct the loops of the jejunum (Fig. 6, c). To avoid this complication it would seem logical to entirely detach from the stomach that portion of the gastrocolic omentum which is in the way, insuring a firm and perfect line of suture of the transverse mesocolon to the stomach wall in whatever position is desired.

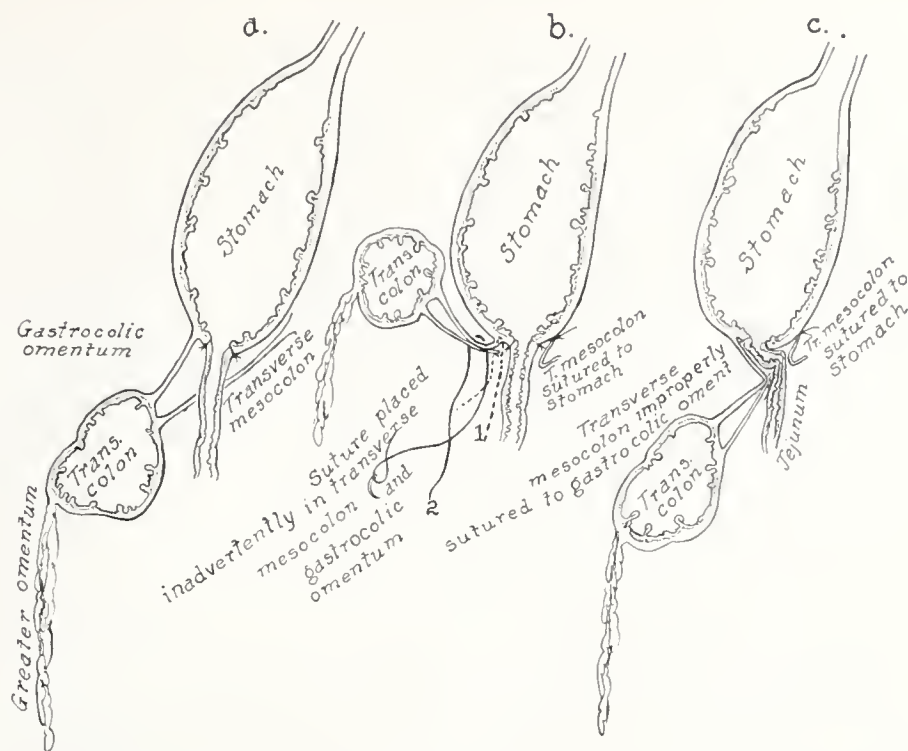


Fig. 6.—Sagittal section through efferent loop. (a) With transverse in normal position. (b) Showing transverse mesocolon and gastrocolic omentum reflected upward during operation. (1) Properly placed suture uniting anterior part of opening to stomach. (2) Suture placed inadvertently through t. m. c. and gastrocolic omentum with angulation and obstruction in efferent loop, the result of improperly placed suture. (c) Angulation and obstruction, the result of improperly placed suture.

Emphasis has been placed on the necessity for a sufficiently large stoma. An opening smaller than the loop of the jejunum would obviously obstruct. An opening only as large as the lumen of the jejunum would seem to be sufficient, but would in fact be a contributing factor to a mechanical obstruction if it should happen that there were any angulation of either the afferent or efferent loops at the stoma. There is no apparent objection to a large opening for, in any case, the outlet can be no larger than the lumen of the jejunum. And with a large opening, angulation would be much less likely to interfere with the emptying of the afferent loop or of the stomach.

The contention that the stoma should be placed at the most dependent portion of the stomach would seem to have little merit theoretically and less merit, in fact, if we are permitted to draw deductions from the normal relations of the pyloric opening to the stomach. Experience does not lead us to conclude that this is a material point. Certainly an anastomosis at the most dependent portion of the stomach, made at the expense of leaving the jejunum in an unnatural relation to the viscus, would be bad surgical judgment.

There are surgeons who feel that their results are better if the stoma is placed toward the cardia. Others contend that the opening placed far down on the pylorus gives a better function. Neither contention seems right for general application. It would seem that the position selected should depend on the structure of the individual. As previously suggested, a careful study of gastric roentgenograms will show a remarkable variation

in different subjects, not only in the vertical but also in the lateral relations of the stomach to the abdominal cavity. We have pointed out that one end of the afferent loop is fixed in a fairly constant position and have suggested that the length of this loop should vary according to whether the stomach is normally high or low. If we are to avoid angulation by reason of the lateral variation in the position of the stomach, it will be necessary to select for the stoma a point toward the pylorus, in the center or on the cardia, depending on which one of these positions will permit the stomach and jejunum to assume a postoperative position in the abdomen without tension on either the afferent or efferent loops (Fig. 7).

Another postoperative complication that is worthy of mention is the obstruction which may follow from a herniation of the efferent portion of the small bowel through the opening which is made by the union of the afferent loop to the stomach. This accident has been reported but six times. At the Woodland Clinic we have recently seen a patient who, about one month after his discharge from the hospital, after having made an uneventful convalescence following gastroenterostomy, done for the cure of a peptic ulcer, returned with evidence of acute and complete obstruction high in the intestinal tract. Immediate exploration demonstrated the fact that through this opening about two-thirds of all the small bowel had herniated. Fortunately the patient came almost immediately after the onset of the trouble. The condition was easily corrected and his recovery was prompt. When we consider that, following every gastro-enterostomy, this opening

between the afferent loop and the stomach is left, the question becomes one of interest as to whether this accident may not be more common than we have previously thought it to be, and whether it might not be wise to consider some method by which the complication might be anticipated and prevented.

SUMMARY

A brief review of the steps in the evolution of the operation, gastro-enterostomy, with the observation that postoperative obstruction has not been uniformly eliminated by any procedure.

A query as to whether the failure to always avoid the complication—postoperative mechanical obstruction—may not be due to the application of a too nearly standardized technique to all individuals without giving consideration to their great variations in anatomical structure.

Stresses the fact that, before operation, the relative positions of the structures concerned in a gastro-enterostomy are not fixed. After operation they are fixed and unless the mechanics of the situation are so worked out that they will be fixed in a relatively normal position without stress or angulation, dysfunction will result.

Suggestions as to the modifications necessary in the length of the afferent loop, position of opening in transverse mesocolon and position and character of the stoma, made necessary by the anatomical variations of individuals, to secure a relatively normal relation of the structures after operation.

Woodland Clinic.

DISCUSSION

ERNST GEHRELS, M. D. (490 Post Street, San Francisco).—This paper is an excellent and comprehensive study of the mechanical factors which may be causes of obstruction after gastro-enterostomy. To eliminate these is important because a postoperative obstruction, once fully developed, always means a trying situation. If measures such as stomach lavage, continuous gastric drainage, change of position, have failed, a relaparotomy becomes inevitable and the situation becomes often a desperate one. It is especially difficult to handle if a very short loop has been used for the posterior gastro-enterostomy. For this reason and because obstruction is less likely to occur, I have been using long-loop anterior gastro-enterostomy with entero-anastomosis for some definite indications: First, in all cancer cases (in these there is no danger of jejunal ulcer); second, in cases of severe dilation of the stomach from obstructing pyloric ulcer, as the danger of obstruction is especially great in a dilated

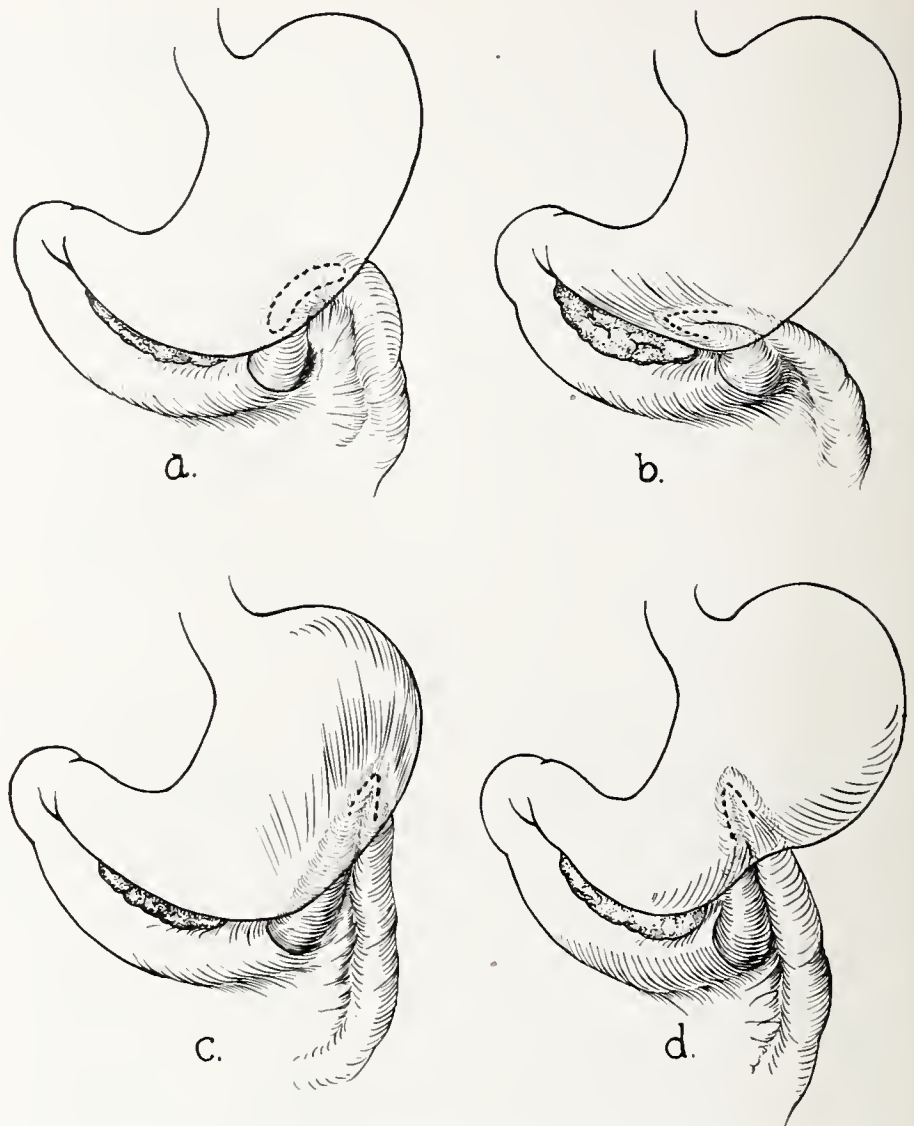


Fig. 7.—(a) Correctly placed stoma. (b) Effect of stoma placed too far toward pyloric end of stomach. (c) Effect of stoma placed too far toward cardiac end of stomach. (d) Effect of stoma placed too high on posterior wall of stomach.

flabby stomach, which may easily cause kinking of a posterior gastro-enterostomy. In this latter type an anterior gastro-enterostomy with anastomosis is much safer, in my opinion. It has the added advantage that any secondary operation as, for instance, a later pylorotomy, is much easier than after posterior gastro-enterostomy. It is doubtful and not borne out by practical experience that anterior gastro-enterostomy carries a greater risk of jejunal ulcer.

In most of the cases of "vicious circle" that I have seen, extensive adhesions were found as the cause of the obstruction. Two cases occurred when a gastro-enterostomy had been added to a gall-bladder operation. The traction of the stomach to the right side toward the gall-bladder bed was apparently the cause of the obstruction. Accordingly, I would also prefer the anterior type if gastro-enterostomy became necessary in conjunction with cholecystectomy.

All these mechanical factors are of importance. However, some cases of obstruction are undoubtedly due to peritonitis from a blow-out in the suture line, and other causes.

There is a large remaining group of cases which cannot be explained either by mechanical obstruction or by peritonitis. In these cases the gastro-enterostomy opening has been found intact at relaparotomy, the afferent and efferent loop were filled, and peritonitis was ruled out by autopsy. For such cases, a dynamic factor, either atony of the stomach or a spastic block of the jejunum below the anastomosis offers the only explanation. Space is too short to allow me to go further into this interesting subject.

ROBERTSON WARD, M. D. (384 Post Street, San Francisco).—This is a very timely discussion of a question of major importance in gastric surgery. Obstruction, following a gastrojejunostomy, or malfunction of an anastomosis in which the technical steps have been above reproach, is a thing we have all seen.

The problems surrounding recurrent peptic ulcer, or marginal ulcer, following gastrojejunostomy, are far from settled at the present time. The elimination of the use of intestinal clamps during operation is unquestionably a tremendous advance in the atraumatic technique which helps prevent ulcerations. Explanation of their occurrence has not been clarified in many instances by attack from the chemical, bacteriological or mechanical viewpoints. I feel that the answer lies in between. Certainly the bacteriological factor should be dealt with by eliminating foci. The actual mechanical factor is a large one and probably the most important. Interference with blood supply and its attendant areas of lowered resistance are quite as important as the visceral obstruction which keeps the acid stomach content in contact with these areas for long periods of time. If the mechanical difficulties have been overcome, as indicated in the paper, the vascular and chemical difficulties automatically disappear.

The lesson to be learned from Doctor Fairchild's discussion is one which cannot be emphasized too strongly, nor too often repeated; that is, each patient is an individual problem and must be treated as such. No one would think of attempting to standardize the operation for removal of a brain tumor or treat every lame patient by the same procedure. This holds true of peptic ulcers, and I feel that gastrojejunostomy itself is far too often used when gastroduodenostomy would answer the need with a great deal less chance of unpleasant sequelae, especially obstruction, as well as with more nearly physiological results.

The emphasis placed upon proper application of an iso- or antiperistaltic loop, the proper site on the posterior surface of the stomach for the anastomosis, the proper location of the mesocolic perforation and the proper length of the jejunal loop, to suit the patient, is well placed. Our slogan might well be, "Fit your operation to your patient. Don't become standardized."

UROSELECTAN — REACTIONS ACCOMPANYING ITS PRACTICAL APPLICATION*

REPORT OF CASES

By GEORGE W. HARTMAN, M. D.
San Francisco

THE importance of recent developments in intravenous urography might well be placed on a parity with the improvement in procedures brought about through the cystoscope, the x-ray, and instrumental pyelography. It may not be amiss first to mention a few of the higher lights of renal visualization by means of renal excretion. In 1905 Völcker and Von Lichtenberg, following cystoscopic pyelography, conducted a series of experiments, using colloidal solutions of heavy metals, but these were found to be too toxic.

Continuing the studies, Rowntree tried sodium iodid intravenously, and in 1923 published his results, which, though not satisfactory, were sufficient to impel further search for a shadow-casting medium. Rosenow, using a combination of urca

with iodin intravenously, produced better results, but with too toxic symptoms and too slow elimination. Zwick, following chronologically the work of Hryntschak of Vienna and Lichtwitz of Altona, and working in Von Lichtenberg's clinic, selected a compound formulated by Professor Binz, which was finally called uroselectan.

Uroselectan comes the nearest thus far to satisfying the requirements of the urologist, who needs a substance that is stable, easily prepared, sterilized and administered, promptly eliminated without toxic symptoms, and that gives a shadow of sufficient concentration to be visible by our present methods of x-ray reading and interpretation. Uroselectan is a pyridin derivative, contains 42 per cent of organically combined iodin, and is readily soluble in water in excess of 50 per cent. It is prepared by dissolving 40 grams in 110 cubic centimeters of redistilled water, filtering and boiling for twenty minutes. An alternative method of preparation is given in the circular accompanying the drug. The volume, upon completion of the solution, should equal 100 cubic centimeters. The injection is made intravenously, by syringe or gravity, into the arm, requiring twelve to fifteen minutes, with a pause of two or three minutes at the end of the first half. If desirable, one-half of the solution may be injected on either side. Films are made at one-fourth, three-fourths, and five-fourths hours after injection.

REPORT OF CASES

It may be of interest to present a report of actual experiences in certain types of cases. Comment will be made on the illustrations presented.

CASE 1.—Figure 1: † The first illustration (Figure 1) is a film of a patient whom we were asked to examine to determine the general kidney outline, the possible presence of stone, and whether there was renal prolapse. This film was taken fifteen minutes after injection. It shows a good filling of the kidney pelvis and ureters as well as an intensification of the kidney outline. This is one of the features which should be highly valued for finding kidney outlines.

Figure 2: The second film (Figure 2) taken one-half hour later, shows an intensification of the shadow and a good cystogram.

Figure 3: The outline in Figure 3, taken one-half hour later, is denser but not so extensive as in Figure 2. The bladder was emptied just before this film was made.

The next picture, taken after two hours, the patient standing—and unfortunately without a Bucky diaphragm—shows little, if any, prolapse. Some shadow-casting medium can still be noted in the kidneys, but not sufficient to reproduce.

The woman on whom the above examinations were made was an extremely sensitive type, and was returned to her physician with a report that kidneys, ureters, and bladder, as far as these tests were concerned, were normal.

CASE 2.—The next patient was a woman in whom a stone had been found at the upper pole of the left kidney (Figure 4). The request was made to determine the condition of the renal system, as her symptoms were on the right side and had been attributed

*From the San Francisco Polyclinic and Stanford Surgical Service.

†Read before the meeting of the Western Branch of the American Urological Association held at Los Angeles, September 18, 1930.

†In all illustrations the patient's right is to the reader's left. Some of the shadows have been outlined but not accentuated.

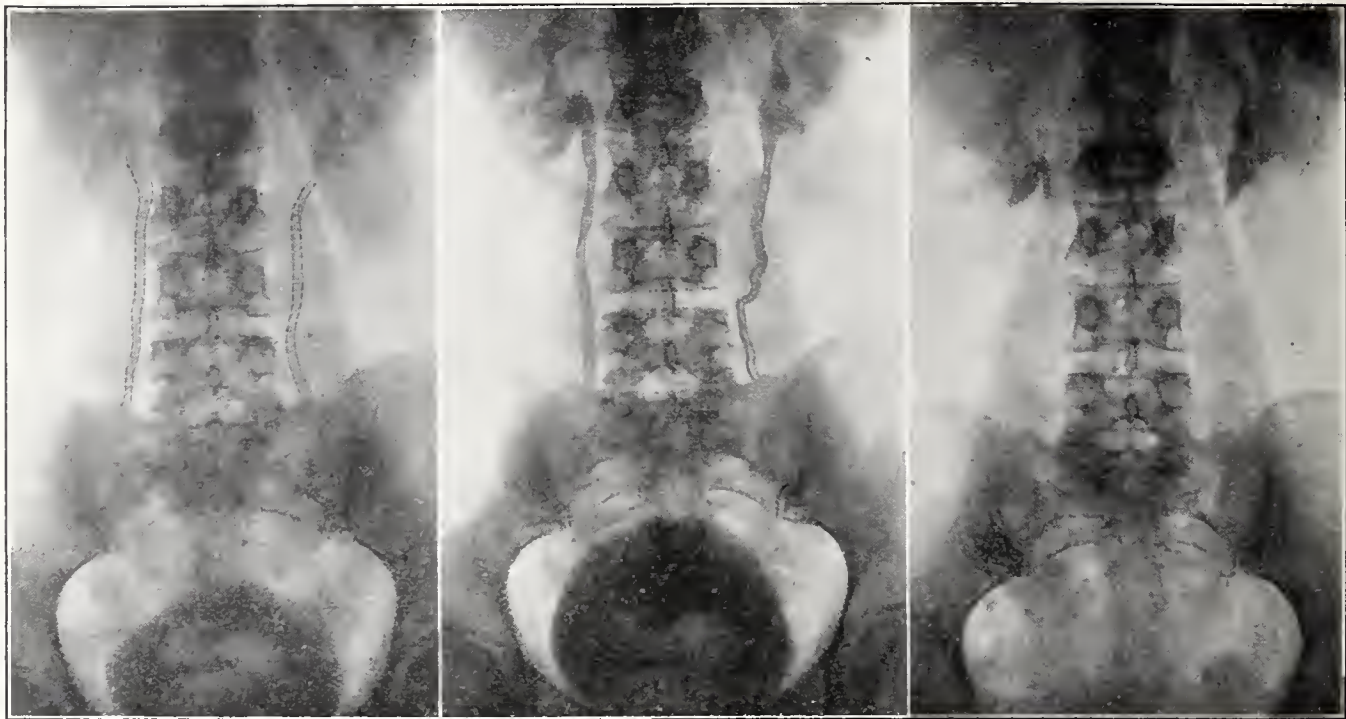


Fig. 1.—Fifteen minutes after injection of uroselectan.

Fig. 2.—One-half hour after injection of uroselectan.

Fig. 3.—One hour after injection of uroselectan.

to a chronic appendix, which the surgeon thought should be removed before proceeding further. An instrumental pyelogram (Figure 5) showed the stone at the upper pole of the left kidney, the pelvis otherwise well defined. All attempts to fill the pelvis on the right side were unsuccessful, the sodium iodid solution regurgitating along the catheter after each of three injections. After two days the injection of uroselectan (Figure 6) showed practically no visible elimination in the usual time and longer. The patient's urea nitrogen at this time was 51 milligrams. Her phthalein output was 25 per cent in two hours. After treatment directed toward stimulating the elimination, the urea nitrogen was reduced to twenty and the appendix was removed under local anesthesia.

The condition of the right kidney has not yet been determined, but we are inclined to think that a malignancy exists.

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CASE 3.—The third patient presented a type in which the use of uroselectan is especially valuable. This man had a complete urinary incontinence for so long that he had practically no bladder capacity. The symptoms suggested tuberculosis, but it was impossible to determine its location because of the bladder irritability. The patient disappeared during a period of preparation, visited several other urologists who had the same difficulties as I. Later he returned. Uroselectan had in the meantime become available.



Fig. 4.—Plain film, showing stone at upper pole of left kidney.

Fig. 5.—Instrumental pyelogram, showing defective filling of right pelvis.

Fig. 6.—One hour and fifteen minutes after injection of uroselectan.

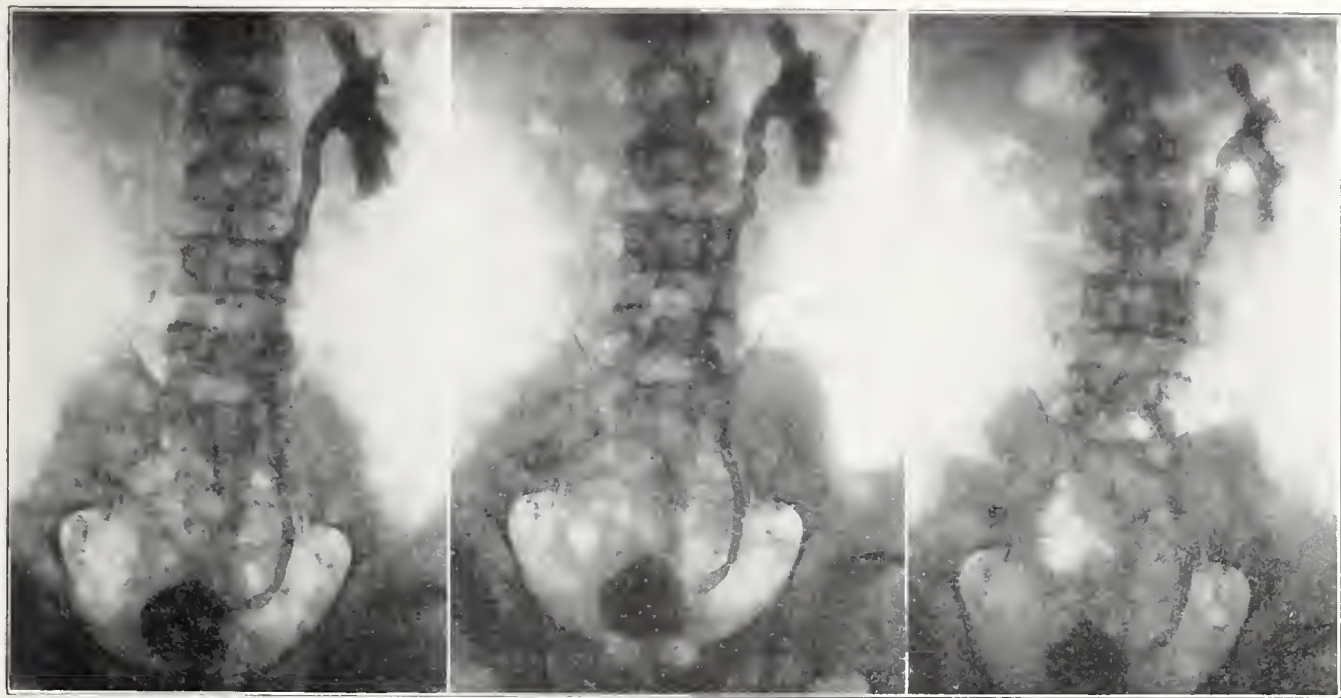


Fig. 7.—One-half hour after injection of uroselectan. No elimination seen on right. Fig. 8.—One-half hour later. Shadow less dense. Fig. 9.—After four hours, delayed elimination.

X-rays (Figure 7) taken one-half hour after the use of uroselectan indicated a good functioning left kidney. After one hour (Figure 8) the shadow was less dense. There was a good cystogram, but no excretion on the right side. Figure 9 shows the excretion still taking place after four hours on the left side, though nothing shows on the right. After twenty-four hours all traces of shadow were gone. In the absence of any excretion on the right side, it was considered evidence enough that this was the diseased side. Upon incision a large amount of foul-smelling pus was evacuated, and a practically destroyed kidney exposed. This will be removed and its pathology determined. This kidney is still functioning in spite of its failure to excrete uroselectan.

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CASE 4.—The next patient was extremely interesting. He had gone through the hands of a num-

ber of urologists, none of whom was able to locate a right kidney. Cystoscopy revealed a central-lying meatus which led to the left kidney. Figure 10 shows the left ureter catheterized with two catheters, and inadequately filled. The next picture (Figure 11) reveals a cystogram made with the patient in Trendelenberg position, in the hope that the sodium iodid solution might find a second ureteral orifice. None of these maneuvers were successful. Figure 12 was taken during the experimental stage with uroselectan. Here again the lack of excretion would indicate the absence of function or kidney on the right side. During this injection the patient had a reaction, to be described later, so sharp that further action was postponed. In the interim our term of service at the hospital expired. Our successors, upon exploration, found a completely destroyed tuberculous right kidney.

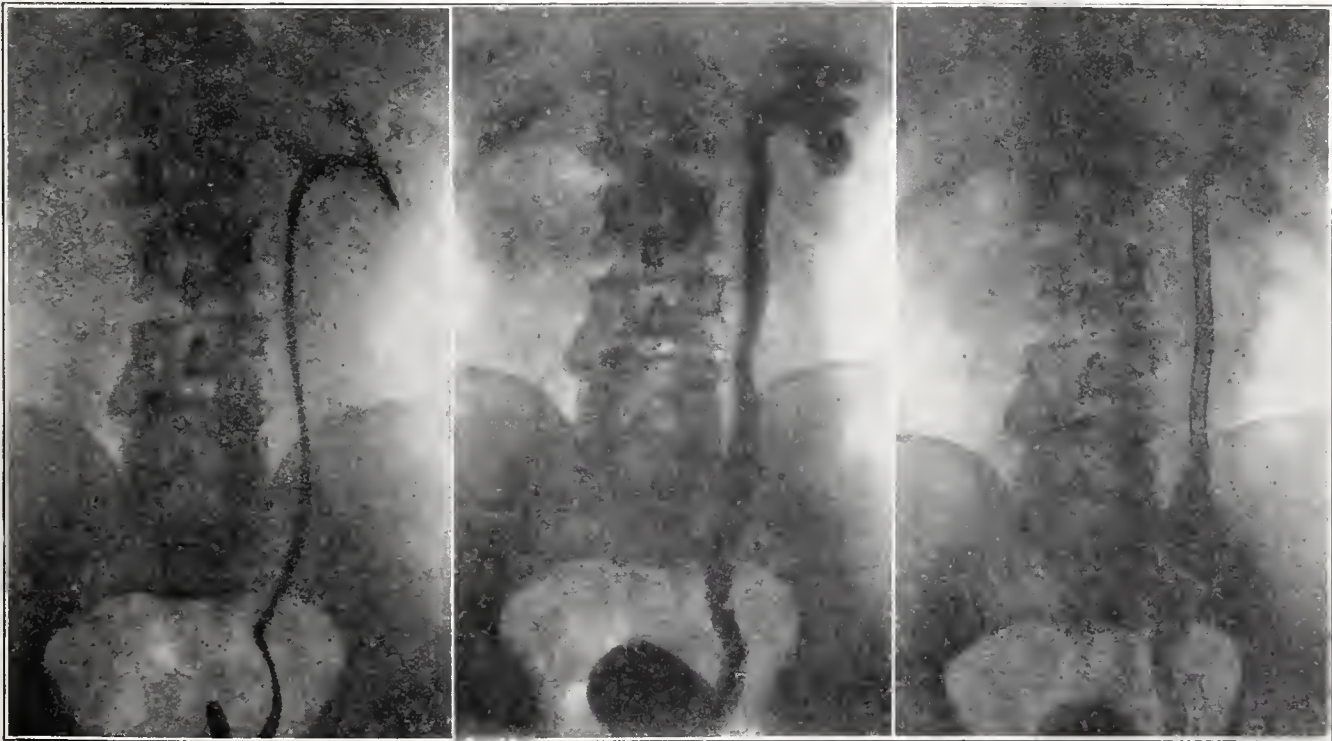


Fig. 10.—Two catheters in left ureter. Pelvis inadequately filled. Fig. 11.—Cystogram with reflux. No right kidney found. Fig. 12.—Pelvis and ureter outlined after injection of uroselectan.

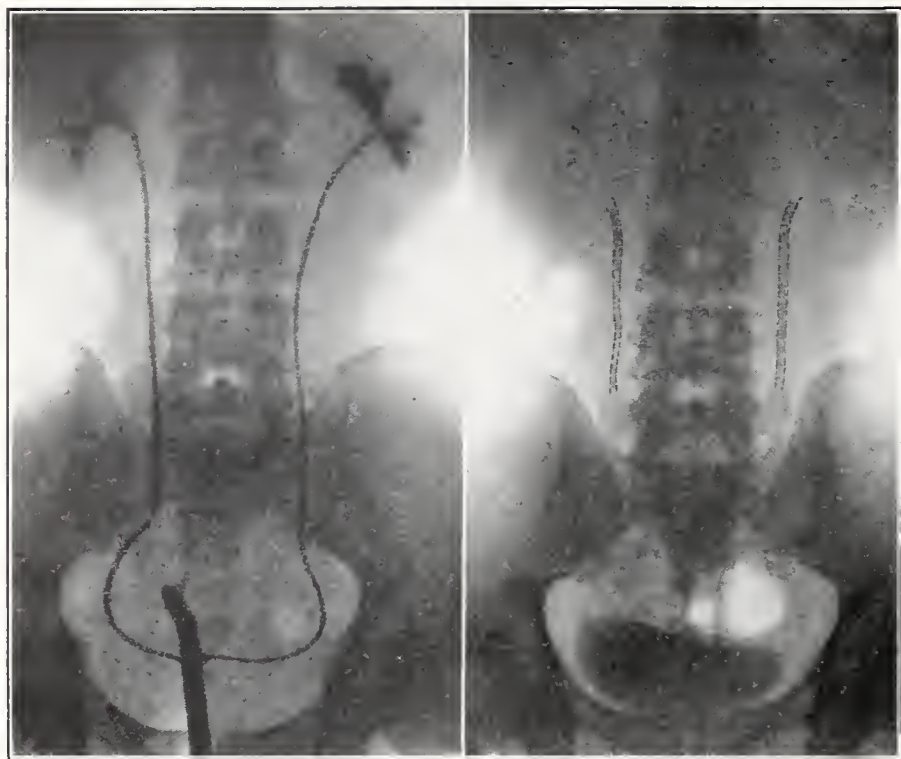


Fig. 13.—Early tuberculosis of left kidney.

Fig. 14.—Forty-five minutes after injection of uroselectan. Very faint outline of pelvis seen.

CASE 5.—The next patient has puzzled us. This is an instrumental pyelogram (Figure 13). His symptoms were those of very early renal tuberculosis. Guinea-pig inoculations were positive for tuberculosis when injected with urine from the left side, where a few pus cells have also been found. Stained smears have been positive for tuberculosis on the right side, but guinea-pig injections were negative.

In the hope that additional information might be obtained by the use of uroselectan, an injection of uroselectan was made (Figure 14), this being the best picture of the series made after forty-five minutes. You will see in this, a patient in whom renal function was good, that the density of the uroselectan shadow is not as good as that of the instrumental pyelogram.

CASE 6.—The next report (Figure 15) is that of a woman who, following an operation for the removal of a fibroid uterus, developed a very painful abdomen with a swelling in the pelvis. An instrument inserted into the cervical stump evacuated a large amount of pus, later followed by clear fluid. Upon cystoscopy it was possible to catheterize the left kidney to the pelvis, and report a normal pyelogram. It was impossible to penetrate the right ureter higher than three centimeters. The result with uroselectan, which was injected intravenously, is shown in Figure 16. It will be noted that the right shadow is very dense, that the pelvis is filled and distended, and that there are two constrictions along the ureter, the lowest at the point where the catheter was obstructed. An uroselectan shadow can also be seen outside the urinary bladder. The surgeon found that the ureter was included in a suture at this point.

Anomalies of the kidneys and ureters will probably be found more

frequently with intravenous urography (Figure 17). Because this patient's pain was on the left side, the instrumental pyelogram was accepted, the defective filling on the right being attributed to the inability to advance the catheter sufficiently far to adequately inject. Re-study of the patient with the use of uroselectan (Figure 18) shows a good pyelogram on the left and a suggestion of bifurcation of the right ureter. The thirty-minute uroselectan picture having been unsatisfactory in outlining the right pelvis, a cystoscope was inserted. It was then discovered that what had appeared to be a normal meatus, was in reality a meatus which was divided transversely by a septum no greater in thickness than a hair. This was the exit of two ureters. At first attempt only one could be catheterized sufficiently high to plug it adequately to inject sodium iodid. Figure 19, therefore, represents uroselectan on the left side and on the upper right side, sodium iodid on the lower right side. Changing catheters enabled us to adequately plug both openings of the meatus, so that Figure 20 represents a uroselectan shadow on the left, uroselectan plus

sodium iodid on the right. This picture shows the short distance that it was possible to advance the catheters. The combination of sodium iodid and uroselectan was not accompanied by any untoward reaction.

We have given a patient weighing two hundred and twenty-five pounds eighty grams of uroselectan in 60 per cent solution intravenously without untoward incident.

REACTIONS ACCOMPANYING THE USE OF UROSELECTAN

All patients complained of pain at the sites of injection, in the mid-arm or shoulder. It required



Fig. 15.—Passage of right catheter impeded by obstruction.

Fig. 16.—Uroselectan elimination delayed by obstruction at arrow.

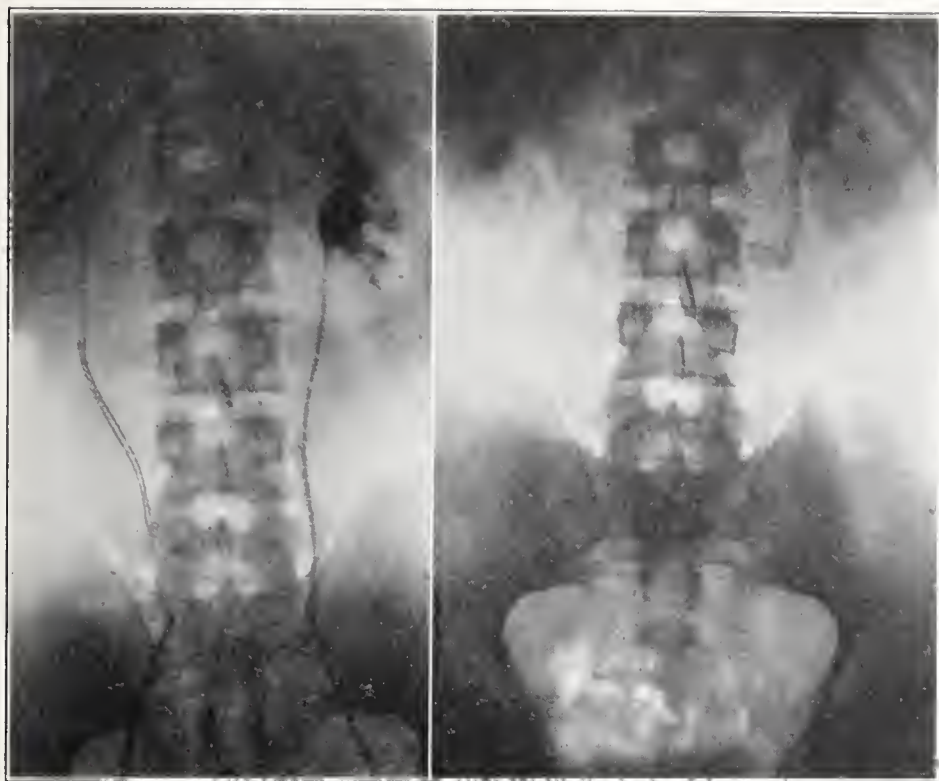


Fig. 17.—Catheter in upper ureter only, on right side.

Fig. 18.—Uroselectan shows two ureters opposite third lumbar vertebra.

considerable perseverance with some to complete the injections. This, however, was not the case with the last injection, which was made by gravity. Further experiment will be made by this method. Two of the women complained of intense burning in the region of the vagina.

The reaction in the case of the destroyed tuberculous kidney excited a great deal of concern. Quoting from the history:

"The patient, shortly after the beginning of the injection, developed a severe foreign proteid and iodid reaction, with giant urticaria, edema of the bronchi, throat, and eyelids. Given adrenalin and atropin, the urticaria subsided quickly, but the edema of the face remained for two hours." An intradermal injection of uroselectan a few days later caused a moderate local reaction.

In a personal communication, Dr. George G. Reinle of Oakland reports:

"During the injection by gravity, which occupied ten minutes, the patient stated she was becoming dizzy and felt a sensation of considerable warmth, also itching. There was a rise in the pulse rate, and headache. Immediately following this, edema appeared, first in the face, starting over the eyes, spreading downward over

the upper extremities and chest. There was no edema of the glottis. In two hours the edema began to disappear in the same sequence as that in which it had occurred, the face first and continuing downward, so that in twenty-four hours it had entirely vanished."

CONCLUSIONS

The use of intravenous urography is valuable in patients in whom there is obstruction at any point which makes for the prevention of the passage of the instrument. This would include stricture, double ureter, prostatic hypertrophy, bladder diseases, hemorrhage, ruptured kidneys, infection, epididymitis, fistula; and in children. To determine renal prolapse or ureteral displacements, it should be of special

value, as the catheter is not present to distort the ureter. It should reveal when a stricture is a stricture. It is not to be accepted as a substitute for cystoscopy, because it cannot include the valuable data acquired by the visible picture or from the segregation of the urines. That the use of uroselectan is not without danger is evidenced by the two cases reported in which there was a marked anaphylactic reaction, one of which alarmed the bystanders very greatly. It has been

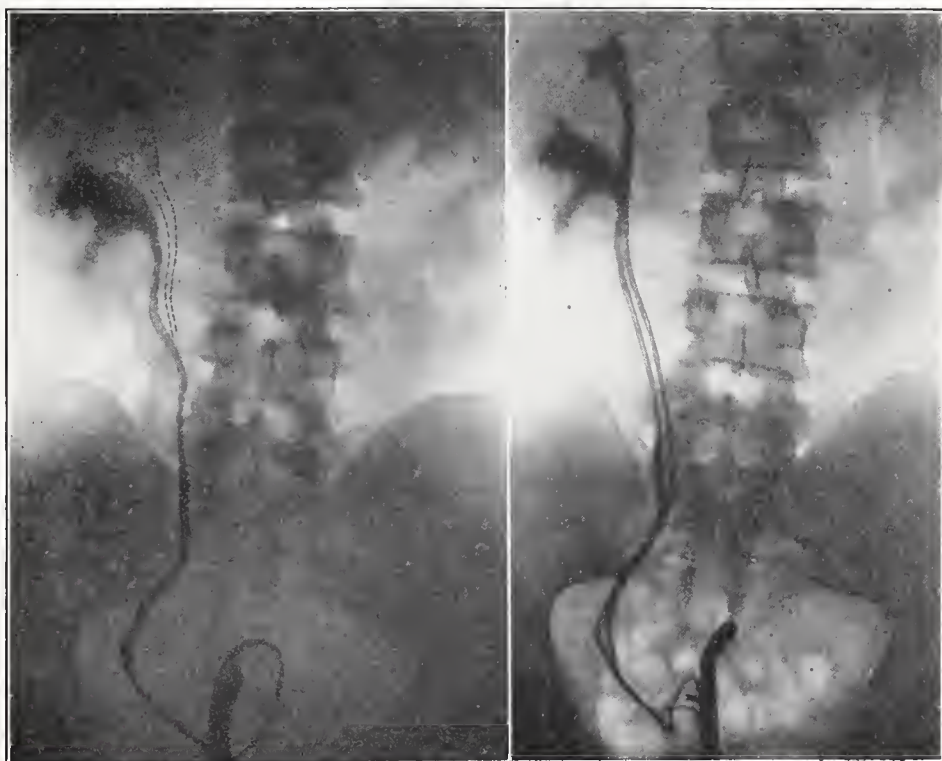


Fig. 19.—Uroselectan shadow on left and upper right, sodium iodid and uroselectan on lower right.

Fig. 20.—Uroselectan on left, uroselectan and sodium iodid on upper and lower right.

suggested that caution be exercised in thyrotoxicosis, pregnancy, active tuberculosis, acute or chronic renal disease, and circulatory disturbances.

One of its limitations is its failure to indicate the ratio of the excretory function. We have learned that the absence of visible excretion does not mean the absence of function.

In a normally functioning kidney the density of the shadow is not equivalent to that of a cystoscopic pyelogram. Uroselectan will not find a "dead" kidney.

Among the advantages of uroselectan may be mentioned: There is not the danger of over- or of underdistention, because of our lack of knowledge of the pelvic capacity. It is valuable for routine examinations and can advantageously be used to determine whether an instrumental pyelogram is required.

I have no doubt that, with many observers at work, uroselectan will soon find its position as an adjunct to our other modes of diagnosis.

999 Sutter Street.

THE CALIFORNIA STATE MENTAL HYGIENE SURVEY*

By GLENN MYERS, M. D.
Los Angeles

A MENTAL hygiene survey of the State of California has been made possible by Governor Young through the inclusion in 1929 of \$20,000 in the budget of the State Department of Social Welfare, which department has been made responsible for the completion of the survey within the present biennium and for the submission of a report and recommendations before the next session of the legislature. This important work is now in progress under the direction of Dr. Frederick H. Allen. The attempt will be made in this paper to outline the scope of the work contemplated and to enlist the coöperation

* The interesting and constructive remarks of those present at the meeting with the governor and his council on March 24, 1928, abstracted and included in the original form of this paper, have been deleted for publication in *California and Western Medicine* by reason of the limitation of available space. It is much regretted that it has not been possible to include the argument, in favor of a survey, presented by Mrs. Anna L. Saylor, director of the California State Department of Social Welfare; Aaron J. Rosanoff, M. D., Los Angeles; E. Van Norman Emery, M. B. (Tor.), Los Angeles; George L. Wallace, M. D., superintendent Wrentham State School, Wrentham, Massachusetts; Elizabeth L. Woods, Ph. D., director Department Psychology and Educational Research, Los Angeles City Schools; and Justin Miller, dean of law, University of Southern California. The remarks of these speakers, if included herein, would add convincingly to the clarification of the need for a mental hygiene survey. Doctor Allen's outline of the survey, covering problems related to mental disorder and care provided to mental defectives and epileptics, juvenile and adult delinquency, other unadjusted groups, educational groups and facilities for teaching mental hygiene and psychiatry, social work, clinics and mental hygiene in industry, has likewise been omitted through necessity. Inclusion of Doctor Allen's outline and the remarks of the above mentioned speakers should have doubled the length of this paper as published. Those interested may apply to the author for further information pertaining to the content of the deleted material. Acknowledgment is made particularly to Mrs. Anna L. Saylor for providing data relating to the various California institutions.

of all persons in improving the present facilities and procedures bearing upon the broad problems of mental hygiene in this state.

WHAT IS MENTAL HYGIENE

The concept implied by the term "mental hygiene" includes mental maladjustment in its broadest sense. The term represents an evolutionary stage in our comprehension of mental disorder. At first, probably only the most pronounced manifestations of mental disorder attracted attention. Then came the belief that those mentally ill were possessed by good or evil spirits. Later gradually developed the concept implied by the word "insanity"—a term now largely limited to the law and largely supplanted in medicine by the term "psychosis." The attitude toward psychotic persons has corresponded to the concept of the nature of the disorder. The attitude was at first influenced by the essentially religious conception. Then came the period of dungeons and chains, next a humanitarian attitude, and now a period of scientific study, rational treatment, and preventive medicine. The designation "mental hygiene" belongs to the last mentioned period. The department of mental diseases of one state has been termed in succession the Lunacy Commission, the State Hospital Commission, and more recently has been named the Mental Hygiene Commission.

It has further been gradually realized that mental disorder is not confined to that degree of its manifestation that we term "psychotic." The psychoneuroses and intelligence defects were distinguished from the psychoses and eventually it was recognized that deviation from the normal mental state is the factor chiefly responsible for crime, delinquency, prostitution, alcoholism, drug addiction, marital difficulties, and social maladjustment in general. Mental hygiene in that concept is a relatively recent development. The mental hygiene movement has had an extraordinary growth and mental hygiene is now recognized to be a major branch of medicine and is one of its broadest and most important branches. The first mental hygiene society was organized at New Haven, Connecticut, May 6, 1908, under the auspices of a group headed by Clifford W. Beers, author of "A Mind That Found Itself." The same group organized the National Committee for Mental Hygiene on February 19, 1909. The First International Congress on Mental Hygiene was held at Washington, D. C., May 5-10, 1930, coincident to and associated with the meetings of the American Psychiatric Association and the American Association for the Study of the Feeble-minded. National, provincial, state, and local mental hygiene societies now exist in the leading countries of the world and were represented at the congress. The extraordinary growth of the mental hygiene movement has resulted from the understanding and work of a group of leaders and from the widespread interest developed in people in all walks of life and in all countries. The principles of the movement

are bound up with the daily lives of all people. The fields of education, law, criminology, general medicine, industry, religion, social work, and others have felt its influence. This is the age of preventive medicine. Prevention is better than cure. Prevention of physical disease has been the principal objective of the various health departments. Prevention of mental disease is the principal objective of the mental hygiene movement.

WHAT ARE THE NEEDS OF CALIFORNIA IN THE MENTAL HYGIENE FIELD?

The California State Departments of Institutions, Social Welfare, Education and Public Health have made every effort to meet the obvious needs, but are limited in their activities and accomplishment by law, procedure, and precedent that have not kept up with the advancement made in scientific knowledge. California has many fine institutions, but she is still far from the realization of an ideal mental hygiene program. There is steady progress, but not the progress that should be desired. There is, however, more flexibility in her methods of procedure than exists in many other states and she has the opportunity to take precedence in that field as she has in other fields. She can utilize to her own benefit the experience in other states, can imitate their examples of accomplishment, but further can exceed the accomplishment of other states without the necessity of passing through a slow, laborious change to the objective desired. To that end it is first necessary to educate the people of the state to the needs and accomplishment possible. When sufficiently well informed, it appears unquestionable that the people will effect appropriate legislation and procedure to the realization of a proper mental hygiene program under state control. The survey is meant not only to collect and systematize data pertaining particularly to California, utilizing the experience of other states and the material gathered in previous and existing allied surveys, but also to bring such information to the people as will give them an understanding of the advantages and benefits to be gained through the revision and elaboration of our present methods and procedure. It is not possible at this time to present the whole situation as it is known to us. It is expected that the report following the survey will make the information to that date available in detail to all. Only a few examples of our problems will be offered.

California State Hospitals for the Insane.—California has six state hospitals for the insane—Mendocino, Napa, Stockton, Agnews, Norwalk, and Patton. On February 25, 1930, the total population of these institutions was 14,451. There were 1422 patients in hospitals in excess of normal bed capacity. Will adequate provision be made for future requirements? The last legislature made an appropriation for a psychopathic hospital for southern California. In an analysis of hospital requirements over the United States for a twenty-year period from 1925 to 1945, it has been estimated that the population of Cali-

fornia will grow from 4,200,000 in 1925 to 7,500,000 in 1945; that the ratio of the insane in hospital to the general population will grow from 350 per 100,000 in 1925 to 385 per 100,000 in 1945; that the actual patient population of the state hospitals will approximate 28,800 in 1945; and that, based upon a cost of \$3500 per patient bed (which is in excess of the rate that has heretofore been expended in this state where special provisions for cold weather are not necessary) the cost of construction to meet the requirements of the additional insane population for the twenty-year period will be \$49,400,000. Quoting from the hospital number of the *Journal of the American Medical Association*, issue of March 29, 1930:

Nervous and mental hospitals, including hospitals for the insane, are growing far faster than all other types of hospitals combined. There are just nine more nervous and mental institutions than there were two years ago, but in that period their total capacity has increased from 373,364 to 414,386 and the average number of patients and inmates has grown in the same period from 349,667 to 395,407. If the present rate continues—and there is no apparent reason for thinking it will not—by 1934 we will have more than one-half million persons in our nervous and mental institutions. This situation most seriously challenges the government and the people of the United States.

In 1929 there were 4268 general hospitals in the United States with a bed capacity of 357,034 and an average patient population of 234,009. In the same year there were 572 nervous and mental hospitals with a bed capacity of 414,386 and an average patient population of 395,407. Expressed in a different way, in 1929 there were 3696 more general hospitals in the United States than nervous and mental hospitals, but there was a bed capacity in nervous and mental hospitals exceeding that in general hospitals by 57,352 and an average patient population in nervous and mental hospitals exceeding that in general hospitals by 161,398. Expressed in still a different way, of all the hospitals in the United States, viz., general; nervous and mental; tuberculosis; maternity; emergency (industrial); convalescent and rest; isolation; children's; eye, ear, nose, and throat; orthopedic; skin and cancer; hospital departments of institutions and all other hospitals, there were in 1929, 5523 more hospitals of this group than there were of nervous and mental hospitals. There was a bed capacity in these hospitals of 78,361 greater than that of the nervous and mental hospitals, but there was an average patient population of the nervous and mental hospitals 64,048 in excess of that of the combined remainder of the group. How can mental disorders be prevented, thus effecting a saving in money to the state through diminution in the otherwise certain increase of population of the state hospitals?

California State Hospital Patients on Parole.—On February 25, 1930, 1182 patients were on parole from the California state hospitals. How can a greater number of patients be placed on parole? How can the average hospital residence of the patients be diminished? Are there enough

psychiatrists in the state hospitals to carry on the clinical work of the institutions? To what extent will the employment of a greater number of psychiatrists hasten the improvement and parole of the patients and the recovery of a normal mental condition? How extensively do the state hospitals reach into the community with psychiatric clinics for the treatment of patients on parole and after discharge, and for the treatment of persons in the community who have mental problems not yet developed to the extent that legal commitment has been necessary? How much work is being done in these fields by psychologists and social workers under state employ? How much mental hygiene work is being done in the community by city and county organizations? By charitable organizations? By mental hygiene societies? By clubs? By churches?

California Laws Regarding Insanity.—The California laws applying to the determination of insanity and to commitment procedure are in serious need of revision. There is too much contact of the patient with representatives of police departments, sheriff's offices, and other legal departments. The insane patient, as is done legally and well in some other states, has the right to be taken to a hospital for the insane in much the same manner, so far as contacts with him are concerned, as a physically ill person is taken to a general hospital. To what extent is the abnormal mental condition of patients aggravated through contacts with the police, sheriffs and the law in general, and to what extent is the recovery of a normal mental state retarded through these contacts? How frequently and how long are patients held in jails pending commitment and what influence has that procedure upon their mental condition? How many general hospitals have psychopathic wards and what facilities for care and treatment do they offer? To what extent would a greater number of adequately equipped and staffed psychopathic hospitals and wards lessen the prevalence of mental disorder? These and other questions may apply also to other problems mentioned hereafter.

California Homes for the Feeble-Minded.—California has two homes for the feeble-minded, Sonoma State Home and Pacific Colony. Their combined population on February 25, 1930, was 2684. There were 286 persons in excess of the certified bed capacity. There were 1141 on parole. Provisions were being made for 160 additional beds. The waiting list exceeds one thousand.

California Correctional Schools.—California has three correctional schools—Preston School of Industry, for boys from sixteen to twenty-one years of age; Whittier State School, for boys from eight to sixteen years of age; and Ventura School for Girls up to eighteen years of age. The combined population of these institutions on February 1, 1930 was 1125. The number of vacancies existing were: Preston 8, Whittier 10, and Ventura 27. The combined number of parole and placement were 1081 boys and 163 girls. Of this

group on parole and placement, only eighty-six were having difficulty in adjustment outside the institutions. The last legislature appropriated the sum of \$325,000 for a new prison for first offenders, to be located in southern California.

California Institutions for the Blind.—The Industrial Home for the Adult Blind at Oakland has a population of 125, with vacancies for five. The workshop for the blind at Los Angeles was opened January 20, 1930, and a number of the blind are being trained in handicraft.

California State Narcotic Hospital.—The State Narcotic Hospital at Spadra about this time had a population of eighty-one. There were thirty-one drug addicts confined in other state hospitals. Fifty-one patients had been paroled from the narcotic hospital. Of this number, thirty-seven were making satisfactory adjustment under the supervision of a parole officer, three had left the state, three had been given a final discharge, and eight had relapsed to the use of the drugs. It was the intent to provide hospital care for only the promising cases, but the courts have sent patients with an outlook hopeless for cure.

California Prisons.—California has two prisons for men and one for women. San Quentin is now being used for first offenders from eighteen years of age. The woman's prison is located on the grounds of San Quentin. Folsom is used for recidivists of any age. On January 15, 1930, San Quentin had 4865 men prisoners and 105 women and Folsom had 2207—a total of 7177. There were 2047 on parole from the men's prisons. An appropriation of \$400,000 is now available for the establishment of a woman's reformatory to be located near the center of the state. It is probable that the present women's prison will be used as a hospital for men.

California's Institutional Population.—The combined institutional population of California is 25,643. In addition the state joins with the counties, granting state aid to 16,500 needy children. New laws granting state aid to the needy blind and aged will probably add approximately 2000 blind and 3000 aged to those receiving state aid. The state will then assume responsibility for full or partial maintenance and treatment of 47,143 persons who are unable to keep step with the remainder of the population.

County Institutions in California.—In addition to the above, the fifty-eight counties maintain sixty-three county hospitals with a combined population of approximately 16,000. These hospitals are largely for emergency and custodial care. A few of them have separate wards for psychopathic patients. The counties also support sixty county jails with an idle population of over 60,000 each year, 2000 of these being minors under the age of eighteen years at the close of the last fiscal year. The number of persons incarcerated in city jails and police stations is not known. What proportion of the jail population are given adequate mental, physical, and social

examination? The last legislature passed a bill compelling jails with a daily population of two hundred or more to provide medical examination of prisoners. How many insane patients are lodged in jails with criminals and cared for by criminals?

Private Institutions in California.—Private institutions and schools for various degrees of intelligence defect are not obliged to operate under school departments of the state, county, or city. The only supervision given these schools is by local fire and health departments in coöperation with the State Department of Social Welfare. Thus they have no uniform standard of housing, administration, cuisine, training and experience of workers, special education among higher types of intelligence defect, or of special efforts at adjustment to work or to environment.

California Bureau of Juvenile Research.—The California Bureau of Juvenile Research at Whittier has been reestablished and its facilities are available to any community desiring the services of a traveling clinic of that type. Psychiatric or child-guidance clinics have been established at Berkeley, Oakland, Los Angeles, Pasadena, San Francisco and San Jose; and other cities are making the effort to provide them. The Department of Institutions is preparing to furnish traveling psychiatric clinics to all parts of the state. Some communities have organized examination of school children retarded in their classes and provide special instruction. How much insanity, delinquency, crime and general social maladjustment may be prevented through meeting the problems in childhood before the development and oftentimes the permanent fixation of more marked mental disorder and other maladjustment? How much increase in existing facilities for instruction in social service and especially psychiatric social service is indicated to equip social workers, teachers, and parents for properly dealing with problems of childhood and adult life? In consideration of the prevalence of intelligence defect, how much happiness and betterment of general welfare can be promoted through early recognition of the mental limitations of children, with education and training in accordance with their intellectual limitations? What of the superior child and the problems resulting from his special abilities? From 1919, Massachusetts has had compulsory examination of all school children retarded in their classes. This examination is made by stationary or traveling clinics, the personnel of each clinic consisting of a psychiatrist, a psychologist, and a social worker.

Some National and International Statistics and Comparisons.—In 1923 the United States had twenty-three times as many murders as all England. Chicago had 563 murders and London had less than fifty. Last year Los Angeles had four times as many robberies as England, Ireland, Scotland, and Wales combined. Under present conditions a jail is a school of crime. Criminal

laws are made more drastic and punishment more severe. There is much solitary confinement and deprivation of sunlight with deleterious influence upon the mind. Adequate psychiatric study of prisoners is carried out only in a few localities. In Europe there is the general tendency to mitigate severity. Rather than punish a few severely, it is regarded better to impose reasonably mild penalties upon a larger proportion of those who break the law. Restitution rather than revenge for the offense satisfies society. In England and Germany, solitary confinement is practically unknown. Common workrooms are used in the day and isolation is practiced only at night. There are no interior cell blocks or dungeons. England has no local jails but state-controlled workshops which are real reformatories. In Belgium all recidivists are thoroughly studied.

WHAT BROUGHT ABOUT THE STATE MENTAL HYGIENE SURVEY?

The proposed survey is an outgrowth of the trends of the time, but more directly has resulted from the interest of certain persons with understanding of mental hygiene problems and the need for improvement in our present methods of dealing with them. On May 2, 1927, at the annual session of the California Conference of Social Work, the following resolution was adopted at a meeting held under the auspices of the Jewish Committee for Personal Service in State Institutions:

Whereas, The conservation of mental health is one of the major goals of social work; and

Whereas, California suffers much economic loss due to incapacity developed by mental disorder; and

Whereas, The facilities provided by the State of California for the care and treatment of the mentally disturbed are taxed to capacity because of the large increase in the numbers of those requiring hospitalization; and

Whereas, California has not yet developed an adequate psychopathic hospital service with a complete system of out-patient work and after-care program; and

Whereas, Mental disturbance destroys individual efficiency and happiness; therefore be it

Resolved, That the California Conference of Social Work in regular session assembled hereby recommends to the Governor of the state, to its Department of Public Welfare and its Department of Institutions that the state develop a mental hygiene program; be it also

Resolved, That copies of this resolution and such supporting material as the executive committee may determine, be sent to the Governor and to the executive directors of the two departments named, with an urgent plea for early consideration of the project.

(Signed) William Ford Higby.

Reverend Robert E. Lucey was elected to the presidency of the California Conference of Social Work for the year 1927-28. With his excellent comprehension of the problems involved, he at once proceeded to appoint a special committee of that organization to work in coöperation with experts in the mental hygiene field. After a number of meetings, his committee on October 19, 1927,

drew up an outline for a survey leading to the development of a mental hygiene program for the state.

Under date November 15, 1927, Father Lucey addressed a letter to the Governor together with copies of the resolution and outline above mentioned, with the following remarks:

The problem with which we are faced arises out of the following situation:

1. The State of California presents serious incidence of delinquency, crime, and other social maladjustments, many of which arise on the basis of various mental disorders.

2. The sciences underlying mental hygiene have made very noteworthy progress in the past twenty-five or thirty years, and have led to the definite conviction that mental disorders and the social maladjustments to which they give rise are preventable. Scientific efforts have resulted in a reduction of morbidity and mortality in general, and in lengthening the span of human life. Similar scientific efforts applied to the problems of mental disorders are capable of producing equally satisfactory results in the field of mental hygiene.

3. No state or country anywhere has as yet been able to organize a complete mental hygiene program. Institutions for the care of mental cases are everywhere in a chronic state of overcrowding. The situation in California is not very different in that respect from other states. The fact is that California has experienced special difficulty by reason of the extremely rapid growth of its population.

A new method of financing has recently been devised in some eastern states which affords a promise not only of getting fully caught up with construction of institutions and with other phases of a mental hygiene program, but of actually reducing at the same time the burden now resting on taxpayers.

It is the opinion of competent authorities in the fields of economics, sociology and education, that various hitherto unsolved problems in those fields can be successfully coped with, not by a direct attack, but indirectly by organizing a complete mental hygiene program which would deal with the fundamental phenomena underlying their problems.

Father Lucey requested the privilege of a meeting of the committee with the Governor in order to set forth more fully the needs and plan for a survey. This meeting was held on March 24, 1928. The Governor, the directors of the State Departments of Public Welfare, Institutions, Education, Public Health and Finance, and several members of the committee were present. (Refer to footnote.)

Another meeting was had by the committee with the Governor and members of his cabinet on September 25, 1928. It was stressed that the survey is meant to cover extramural as well as intramural conditions. The conviction was expressed that state control is absolutely necessary for the most effective operation of a state mental hygiene program. It was urged that a preliminary mental hygiene survey is the most direct and important factor to bring about the realization of that program. It was pointed out that the survey should clarify the problems to be met, should serve to educate those persons who deal with the problems and so fit them to meet the problems in a better way, should bring the need for revision of methods and procedure to the notice of the

people of the state and should indicate the best course to pursue to that end. Thus should be effected a decrease in mental hygiene problems and a decrease in the ever-increasing expense in dealing with them.

In the early part of 1929, the Governor took the action announced in the introductory portion of this paper making possible the mental hygiene survey. The Governor further authorized the organization of a central survey committee to be composed of the directors of the State Departments of Social Welfare, Institutions, Public Health, and Education, and of five experts in the field of mental hygiene, with Mrs. Anna L. Saylor, director of the State Department of Social Welfare, as chairman. The Governor later appointed an advisory committee consisting of fifty-six members. Mrs. Saylor immediately called a meeting of her committee, meetings were held from time to time thereafter and considerable work was accomplished under her excellent chairmanship. It was decided to invite Dr. Frederick H. Allen to direct the survey and he accepted the position. Born in California and educated at the University of California, Doctor Allen received his medical training at Johns Hopkins University. Special previous experience has fitted him well for this piece of work.

Doctor Allen made a visit to California to outline the preliminary procedure and returned in May 1930 to take active charge. Two trained psychiatric social workers are now in the field gathering data. Members of the Central Committee have given largely of their time to the work of the survey and it is expected that they will continue to do so by reason of the fact that the coördinated assistance of a number of experienced or interested persons is necessary to the successful progress of the work outlined. In fact the amount of funds allocated for the survey and the time allowed for its completion are not great and a successful and satisfactory termination of the work proposed will not be possible unless those directly interested in mental hygiene problems will give freely of their time and experience to make it a success. This presentation is meant primarily to set forth the story of the survey to date and to solicit the active support of all neuropsychiatrists, psychologists, social workers, heads of departments dealing with mental hygiene problems, teachers, editors, and others who may be helpful in the accomplishment of a project that should produce results of advantage to all. The project is worthy of every effort to bring about the best program possible—a humanitarian issue in the decrease of mental disease and social problems and an economic issue affecting every taxpayer in the decrease of the expense incident to the treatment of these problems.*

1052 West Sixth Street.

*Ed. Note.—Since the above article was written, the California mental hygiene survey has been successfully completed. It is hoped that a printed report of the survey will be ready for distribution on or about December 1, 1930.

THE TREATMENT OF BONE TUMORS*

By EDWIN I. BARTLETT, M. D.
San Francisco

DISCUSSION by Arthur U. Desjardins, M. D., Rochester, Minnesota; John C. Wilson, M. D., Los Angeles; C. L. Connor, M. D., San Francisco.

THE treatment of bone tumors until comparatively recently has been largely empirical and has consisted of a variety of procedures, both surgical and nonsurgical. Up to approximately the beginning of the twentieth century about the only therapeutic measure employed was high disarticulation. This penalty was meted out to practically all individuals with any type of bone lesion which could not be grouped under the heading of inflammatory processes because nothing was known about the pathology of these conditions and the few survivors up to this time had had the benefit of amputations. The opening of the twentieth century saw the beginning of an organized effort to study the pathology of bone tumors. Out of these scientific investigations, notably those by Bloodgood, came a more conservative attitude and a replacement of amputation in large measure, by other methods such as resection, curettement, x-ray or radium therapy, mixed toxin treatments, etc.

A further and better understanding of this field has come of recent years through the sarcoma registry, which has brought together large numbers of all kinds of bone tumors and has placed this material for study in available form before the leading pathologists and surgeons of the country. The outstanding advances from this source have been the confirmation of Doctor Bloodgood's contention that giant cell tumor is not sarcoma, the exclusion of bone cyst and osteitis fibrosa from among the true neoplasms, and the establishment of a simplified classification.

CLASSIFICATION OF BONE TUMORS ACCORDING TO ORIGIN

Not the least of the advantages gained in our recent scientific investigations have been the grouping together of all bone tumor lesions into a small group of eight main divisions (Table 1).

TABLE 1.—Tumor Classification Based on Origin

1. Metastatic tumors.

2. Periosteal fibrosarcoma.

3. Osteogenic tumors.

Benign.

a. Exostosis.

b. Osteoma.

c. Chondroma.

d. Fibroma.

Malignant (osteogenic sarcoma).

a. Anatomic types.

Medullary and subperiosteal.

Periosteal.

Sclerosing.

Telangiectatic.

b. Undifferentiated sarcoma.
4. Inflammatory conditions that may simulate bone tumors.

1. Myositis ossificans.

2. Osteoperiostitis.

a. Traumatic.

b. Syphilitic.

c. Infectious.

3. Osteitis fibrosa (bone cyst).

5. Benign giant cell tumor.
6. Angioma.

Benign.

Malignant (angiosarcoma).
7. Ewing's tumor.
8. Myeloma.

One of the greatest stumbling blocks in the past has been the multiplicity of terms used and the various interpretations placed upon them. This classification puts all the malignancies under approximately four heads, namely, metastatic lesions, sarcoma arising from bone cells (osteogenic sarcoma), sarcoma arising from marrow cells, and endothelial myeloma (Ewing). It divides the benign tumors into those arising from the bone cell and the medullary lesions of unknown origin, that is, giant cell tumor and bone cyst.

All our old familiar terms, such as periosteal sarcoma, medullary sarcoma, spindle cell sarcoma, round cell sarcoma, osteochondromyxosarcoma, etc., are all grouped under osteogenic sarcoma. Perhaps we should also include here the separate headings in our present classification of periosteal fibrosarcoma, Ewing's tumor and angiosarcoma, but as yet these conditions have not been wholly reconciled with our conception of the term "osteogenic" or have not been, in some instances, definitely proved to belong among the tumors of bone. The classification is not a perfect one, but for the first time in the history of bone tumors we all talk a common language and we have a common starting point in our further studies.

CLASSIFICATION ACCORDING TO PROGNOSIS

To the average surgeon, however, the practical application of all this to his problem of treatment may be somewhat obscure. Fortunately there is a very close parallelism between the prognosis and the treatment, and since the morbidity is a known factor the following regrouping according to prognosis should simplify considerably the rules for treatment.

TABLE 2.—Classification According to Prognosis

1. Benign—curable.

(1) Osteogenic tumors.

a. Exostosis.

b. Osteoma.

c. Chondroma of the phalanges.

d. Fibroma (lipoma, fibrolipoma).

(2) Inflammatory conditions.

a. Osteoperiostitis.

b. Osteitis fibrosa (bone cyst).

(3) Giant cell tumor.
2. Malignant—incurable.

Osteogenic sarcoma.

Ewing's tumor.

Myeloma.

Angiosarcoma.

Metastatic tumors.
3. Borderline—hopeful.

Central chondromyxoma (except phalangeal).

Atypical sarcoma.

Under benign come all tumors that are curable by the comparatively simple surgical or non-surgical procedures which do not cause mutilation, deformity, or permanent disability. Under malignant come those which are hopeless, that is, those which are rarely curable by any known therapeutic agent. Under borderline come those tumors which are questionably benign or hopeful and which, like the operable malignant tumors

* Read before the General Surgery Section of the California Medical Association at the fifty-ninth annual session at Del Monte, April 28 to May 1, 1930.

elsewhere in the body, are sometimes curable by wide excision with attending more or less mutilation and deformity.

TREATMENT OF VARIOUS GROUPS

Benign.—The tumors in the benign osteogenic group which fall under the headings of osteoma, exostosis, osteochondroma, chondroma, etc., should be treated by excision without destroying the supporting action of the skeleton. That is, the offending portion only is removed and no margin need be given. Perhaps one exception is the central chondroma which, in the long bones, oftentimes is not eradicable without resection, and for this reason these tumors have been placed in Group 3. In the phalanges, however, this same tumor runs true to form as a member of the benign osteogenic group in that simple curettement is sufficient.

Osteitis fibrosa (bone cyst) is a self-limiting disease. All that is required is a stimulation to healthy normal reaction or, in the case of bone cyst, the collapse of the rigid bony cavity. The treatment, therefore, is x-ray or an equivalent stimulus, surgical fracture.

Giant cell tumor, while not always self-limiting, is also curable under the influence of the proper stimulation to normal reaction. At one time it was thought necessary to curet and thoroughly destroy all the tumor tissue or, where this was impossible because of dangers of hemorrhage, resection was thought necessary. We now know that giant cell tumor is curable probably in all instances by x-ray or radium. These agents, while they may not cause any appreciable shrinkage in the size of the tumor mass, do bring about an ossification, and limit the further spread of the disease process.

Malignant.—In the malignant group the type of treatment is immaterial inasmuch as all therapeutic agents are inadequate. Possibly osteogenic sarcoma in its earliest stages is curable by wide resection, but unfortunately metastases have probably already taken place by the time the first evidence of the tumor is demonstrable by x-ray. While we must include osteogenic sarcoma and Ewing's tumor in the group of essentially incurable there are a few cases of registered tumors in each group which have lived without evidence of recurrence five years or more after the last treatment.

Among Ewing's tumors the eleven reported by Connor in 1926 still remain well (Table 3). There have been no additions to the list. These represent 20 per cent of the fifty-four cases then registered. These survivors owe their lives to no definite type of treatment inasmuch as they were all treated differently. All had benefit of some form of surgery except one. He had x-ray treatment only. One case had multiple skull, and even intracranial metastases, and has now been alive and apparently entirely well for ten years after his last x-ray treatment. Ewing's tumor, therefore, cannot be placed in the hopeful or borderline class because there must be some factor outside the therapeutic agents employed that gives the cure, and it would seem that it is simply a case of good or bad luck if the patient survives or dies.

Among the osteogenic sarcomata there are thirty-one five-year cures out of 125 registered cases which have been followed five years after the last treatment (Table 4). These have all been instances of tumors of the extremities and all have had amputation. None have had high disarticulation except one, a growth in the upper

TABLE 3.—Cases of Ewing's Tumor Contained in the Registry of Bone Sarcoma, Living Five Years or More

No.	Case No.	Sex	Age at Onset	Location	Treatment	Remarks	Duration of "cure," years
1	28	M.	13	Clavicle	Excision	Recurrence — x-ray treatment — cure(?)	5
2	137	F.	Young	Scapula and clavicle	Resection	Combined with x-ray treatment	6
3	185	F.	7	Tibia	Amputation	Followed by x-ray, radium and Coley's serum	10
4	246	M.	30	Humerus	Radium	Cure(?) under radium treatment alone	6
5	267	M.	8	Fibula	Amputation	Recurrence in groin and lungs—x-ray. Cure(?)	8
6	294	F.	9	Jaw	Curettement	Followed by x-ray and radium	7
7	311	M.	30	Tibia	Amputation	Followed by Coley's serum	7
8	326	M.	26	Humerus	Amputation	Followed by x-ray, radium and Coley's serum	7
9	348	M.	3	Femur	Amputation	Skull and intracranial metastases. Cured with x-ray, radium and Coley's serum	9
10	398	M.	21	Femur	Amputation	Followed by Coley's serum	19
11	515	M.	7	Scapula	Resection	Followed by x-ray	5

TABLE 4.—Treatment Used in Registered Five-Year Cures of Osteogenic Sarcoma

Number	Case Number	Surgeon	Exploratory	Curettage	Excision	Resection	Toxins	Lead	Radium	X-ray	Amputation	Cellular Type	Location
1	29	Hubbard	x	.	.	.	.	.	.	x	x	Fibrosarcoma	Tibia at knee
2	50	Rixford	x	.	.	.	.	.	.	.	x	Myxosarcoma	Femur at knee
3	64	Wells	x	.	x	.	.	.	.	.	x	Chondrosarcoma	Femur at knee
4	100	Bloodgood	.	.	x	.	x	.	x	.	x	Chondrosarcoma	Femur at knee
5	101	Bloodgood	x	.	.	.	.	.	.	.	x	Myeloma(?)	Femur at knee
6	102	Bloodgood	x	.	.	.	.	.	.	.	x	Mixed sarcoma	Tibia at knee
7	147	Simmons	.	.	x	.	.	.	.	.	x	Osteosarcoma	Humerus at shoulder
8	156	Ginsburg	.	.	.	.	.	.	.	x	x	Telangectatic sarcoma	Humerus—middle
9	172	Ewing	.	.	.	.	x	.	x	.	x	Chondromyxosarcoma	Femur at knee
10	176	Coley	.	.	x	.	x	.	x	x	x	Chondrosarcoma	
11	177	Coley	.	.	.	.	x	.	x	.	x	Chondro(?)sarcoma	
12	183	Coley	x	.	x	.	x	.	x	.	.	Fibro(?) sarcoma (atypical)	Tibia at ankle
13	184	Coley	.	.	.	.	x	.	x	.	x	Fibrosarcoma	Femur at knee
14	202	Jones	.	.	x	.	.	.	.	.	x	Chondrosarcoma	Tibia at ankle
15	214	Simmons	.	.	.	.	x	.	.	x	x	Fibro (sarcoma?)	Femur at knee
16	234	Dye	.	x	x	.	.	.	.	.	x	Chondrosarcoma	Ulna at elbow
17	261	Thompson	.	.	.	.	.	.	.	.	x	Mixed cell sarcoma	Femur at knee
18	408	Coley	.	.	.	.	x	.	.	.	x	Large round cell	Femur at knee
19	456	Coupal	.	.	.	.	.	.	.	.	x	Mixed cell sarcoma	Tibia at knee
20	501	Bloodgood	.	.	.	.	.	.	.	.	x		Femur at knee
21	537	Thompson	.	.	.	.	x	.	x	x	x	Spindle cell sarcoma	Femur at knee
22	586	Coley	x	.	.	.	x	.	x	x	x	Fibrosarcoma	
23	109	Bloodgood	.	.	.	x	.	.	x	.	.	Chondrosarcoma	Rib
24	115	Bloodgood	.	x	.	.	.	.	.	.	x	Large round cell sarcoma	Tibia at knee
25	296	Meyerding	.	.	.	.	.	.	.	.	x	Chondrosarcoma	Tibia at knee
26	312	Simmons	x	.	.	.	.	.	.	.	x	Chondromyxoosteo	Femur, lower end
27	344	Simmons	x	.	.	.	.	.	.	.	x	Fibro(sarcoma)?	Tibia at knee
28	498	Bloodgood	x	.	.	.	.	.	.	.	x		
29	523	Evans	x	.	.	.	.	.	x	x	.	Small, round cell	Left ilium
30	668	Fennel	.	.	x	.	.	.	x	.	.	Chondrosarcoma	Lower femur
31	867	Harris	.	.	x	.	.	.	.	.	.		Scapula

end of the humerus. The majority were in the lower end of the femur. The answer might lie in the type of cell making up the majority of the growth. In reviewing the microscopic pathology one is struck by the preponderance of chondromatous tissue, and when one looks at each case as a whole he is further struck by the fact that none of the cured cases were truly typical of any of the known forms of osteogenic sarcoma. This group of thirty-one cures, therefore, probably does not indicate the real situation and for the present we must consider the clinically typical case of osteogenic sarcoma as incurable.

Borderline.—In the borderline group has been placed central chondroma and central myxoma, excluding the central chondroma of the phalanx which is apparently always benign. Myxoma is possibly a modification of cartilage and therefore

probably should be included under the heading of chondroma. If so, this should add weight in the placing of chondroma in the doubtful group, because it is a well-known fact that tumors elsewhere in the body which show a high percentage of myxomatous tissue are extremely difficult to eradicate locally, requiring very extensive margins. Furthermore it has been everybody's experience that chondroma tends to recur and that a simple shelling out or curetting out of the tumor is insufficient. These facts, together with the observation that a cell which resembles more or less closely the cartilage cell seemed to be the preponderating element in many of the thirty-one cured malignant tumors, might be taken to indicate that chondromatous tumors belong rather in the truly benign and innocent group than among the hopelessly malignant.

SUMMARY

In conclusion, most bone tumors are either malignant, inoperable, untreatable, and rapidly fatal or are curable, either without the necessity of surgery or by a nondisabling and nonmutilating operation. All these are quite typical and practically without exception can be positively diagnosed by the clinical evidence alone. On the other hand, a small minority which are atypical clinically may be curable by conservative amputations or wide resections. Exploratory operations are strongly indicated in this group, but can be limited to the clinically atypical cases. The employment of amputation as a treatment of bone tumors should become relatively rare. Furthermore x-ray treatment should be given a trial and should be looked to for a cure until it becomes evident that the growth will not be affected by this therapeutic agent or until the diagnosis becomes clear.

The outcome, therefore, of our recent advances gained in the study of bone tumors is not the saving of lives but the saving of limbs. We have not advanced in the cure of sarcoma and probably will not save any of the victims of this disease until we find a preventive which will render the human body immune or until we have found some means of diagnosing sarcoma at an earlier stage, that is, before there is x-ray evidence of the disease. What we have learned, however, is almost as important as saving lives. We have learned to allow our patients who are suffering with malignant bone disease to die whole under the comforting and pain-relieving effects of x-ray and morphin, and we have learned to carefully preserve the limbs affected with non-malignant disease, thus saving their owners from a life of mutilation, deformity, and disability.

490 Post Street.

DISCUSSION

ARTHUR U. DESJARDINS, M. D. (Mayo Clinic, Rochester).—Doctor Bartlett is to be complimented on his excellent presentation and analysis of the present situation with reference to bone tumors. I do not care to enter into a discussion of the classification of bone tumors, because even the best pathologists in the country have failed to come to an agreement on this question. I concur with Doctor Bartlett in his remarks concerning the treatment of benign and inflammatory bone conditions. I am not a surgeon but a radiologist, and any comments I may make must naturally be from the point of view of radiology.

In connection with giant cell tumors considerable evidence indicates that these lesions are essentially chronic inflammations which sometimes undergo malignant transformation. The general unfamiliarity with the effect of radiation on such lesions is still responsible for the amputation of many limbs, some of which might otherwise be saved. When a pure giant cell tumor is exposed to a moderate dose of roentgen or radium rays the treatment is followed within two weeks by a reaction characterized by swelling, pain, and redness, and the attending physician or surgeon, as well as the patient, may infer that irradiation has increased rather than decreased the growth of the tumor. This reaction is only temporary, however, and subsides in a week or ten days. It is followed by slow but gradual repair, including deposition of new bone, and in the course of six to twelve months the lesion may have been completely replaced by solid new bone. Unfortunately, it is sometimes difficult to be certain whether such a

tumor is entirely benign or whether it may contain malignant elements, and this throws on the attending physician or surgeon, as well as on the radiologist who may be treating the patient, a grave responsibility. If any such doubt exists it must at all costs be removed and the treatment must rest on this point. Also the economic situation of the patient must be considered.

Among the true bone tumors some are relatively radiosensitive and others relatively resistant. Perhaps the most sensitive malignant tumor of bone is the endothelial myeloma of Ewing, which can often be made to disappear, sometimes permanently, but which may later exhibit metastasis in spite of the disappearance of the primary tumor. The chondrosarcoma comes next in radiosensitiveness. The fibrosarcoma is comparatively resistant. Some tumors of this kind retrogress to some extent under irradiation, but they seldom disappear completely, and even if they do, nearly always recur. Tumors containing any considerable degree of myxomatous tissue usually exhibit a high degree of resistance and irradiation has little effect on growths of this kind.

✽

JOHN C. WILSON, M. D. (1136 West Sixth Street, Los Angeles).—Doctor Bartlett has well summarized the gravity of the malignant bone tumor, as contrasted with the very gratifying results which may be obtained in the nonmalignant group, by means of nondeforming therapeutic procedures. Unfortunately, the early diagnosis of bone tumors is beset in many cases with formidable difficulties. The roentgenograms are sometimes characteristic and pathognomonic, but all too frequently the roentgenologist is unable to tell us with absolute certainty the nature of the presenting lesion. We have seen a classical x-ray picture of osteogenic sarcoma produced by tertiary syphilis.

Of all the malignant tumors Ewing's endothelioma is perhaps the most protean in its manifestations. It is often clinically indistinguishable from chronic osteomyelitis and presents a very similar x-ray appearance. Recently we have seen a Ewing's tumor which gave the characteristic x-ray picture of Brodie's abscess. When faced by such uncertainties as these the surgeon is obliged to perform an exploratory operation, remove a tissue section, and turn to the pathologist for further information; but even here we encounter a difference of opinion which is disconcerting when one must decide whether or not to amputate.

One addition to Doctor Bartlett's borderline group is suggested: the angiosarcoma of relatively low malignancy apparently offers a fairly good chance of cure by early amputation. The benign angioma if it involves any considerable amount of bone also belongs in this group because of the fact that a rather extensive resection of the bone may be required.

✽

C. L. CONNOR, M. D. (University of California Hospital, San Francisco).—I believe Doctor Bartlett has given, perhaps for the first time in the history of bone tumors, a clinical classification which is practical and useful. I should not wish to think, however, that all of the groups which he calls incurable are always and quite definitely incurable. I should, as Doctor Wilson has done, remove this peculiar tumor which we now call angiosarcoma from the definitely incurable group and say that, provided proper surgical treatment is initiated, it may be curable, that is to say, removed. I should also ask that Ewing's tumor, or at least a certain percentage of them, be placed in the borderline group. We know that some arise very suddenly, metastasize very early and produce death in an extremely short time. There are others, however, which may be removed in time. I do not entirely agree with Ewing that this tumor is multiple from the beginning and that, therefore, amputation is of no value. I should advise amputation or excision in all of these cases and should expect that in a small percentage a permanent cure could be effected.

DOCTOR BARTLETT (Closing).—The main point which I wished to bring out was that of surgical conservatism, that is, the avoidance of amputation if possible, and resection rather than high disarticulation. No case should be submitted to amputation without definite proof that the condition is malignant and, contrary to the principles of surgery in malignant disease elsewhere in the body, it is well to take time for careful study before deciding on the type of treatment to be employed. Having decided upon amputation one should resect rather than disarticulate, because, with rare exceptions, any bone malignancy which is not curable by resection with a moderate margin, is not curable by the highest disarticulation. During the period of study, x-ray should be employed because a moderate amount of x-ray can do no harm in benign disease and it might bring some benefit in malignant disease.

I must agree that angiosarcoma is sometimes curable by amputation during the early stages of the disease. The picture in the x-ray is fairly typical, but not until the process is quite advanced. It would be caught, therefore, in its early stages in the atypical group and would probably have the benefit of an exploratory operation.

DIFFERENTIATION BETWEEN YAWS AND SYPHILIS*

By B. C-N. O'REILLY, M. D.
San Francisco

DISCUSSION by Fred R. Fairchild, M. D., Woodland;
Alfred C. Reed, M. D., San Francisco.

YAWS (framboesia, paranghi, puru, gueos) is a disease of the tropics and especially of the South Sea Islands and western Pacific, including the Dutch Indies and Malaya. I encountered it first in 1912, 1913 and 1914 while in the British Colonial service as senior medical officer and deputy commissioner of the western Pacific. Later, after the war, I had to deal with it in the Malay states. In the western Pacific my government statistics showed that it occurred in the ratio of one to three of the population.

Until comparatively recent times this disease was described only in books on skin diseases, and its general character was unrecognized. Inasmuch as the interchange of trade and passengers between the islands of the Pacific Ocean and this coast is on the rapid increase, it is necessary that the disease should be easily recognized else it will gain a foothold and become endemic in the subtropical parts of this country.

STAGES

The lesions of yaws divide themselves into three stages—primary, secondary, and tertiary. However, it should be stated that there are authorities who still deny the tertiary stage. This is probably due to the superficial similarity between the late secondary and tertiary manifestation of yaws and those of syphilis. In a community harboring both diseases the tertiary lesions of yaws would be ascribed to syphilis owing to the nonrecognition of the disease.

BACTERIOLOGY

The microorganism causing yaws is a slender treponema called *Treponema pertenue* by Castellani, and is indistinguishable from the *Treponema pallida* of syphilis. It is constant in the primary lesion and in the unbroken secondary papule. It is found, also, in the lymph glands, spleen, and bone marrow. It is not demonstrable in the blood, but that the blood can be used as an infective agent is proved by monkeys developing typical lesions containing the treponema when injected with blood from an infected person.

INOCULATION IN MAN

Paulet, in 1848, inoculated negroes with the secretion from yaws lesions and found the incubation period to be twelve to twenty days. The primary or "mother" yaw mostly appeared at the site of inoculation. Charlouis, in 1881, inoculated Chinese in the same manner and with similar results. He later inoculated a Chinaman suffering from yaws, with syphilis. A typical primary sore developed. I have had out-patients in my island hospital at Tarawa, Gilbert Islands, suffering from yaws develop a chancre in the days before salvarsan was used as a treatment for yaws, this proving the separate identity of the two diseases.

HISTOPATHOLOGY

The microscopic pathology of yaws has been studied by Unna, McLeod, Jeanselme, Plehn, Schuffner, Marshall, Shannon, Sieburt, Craig, Lehn, and many others. The outstanding feature is that yaws affects the epithelium rather than the cutis, the *Treponema pertenue* being found in the epithelial layer. In the papules the surface epithelium is greatly increased in thickness and numerous elongated down-growths seen. The corium is the seat of marked edema with a diffuse cellular infiltration of polymorphonuclear, large and small mononuclear, eosinophil, and plasma cells. In the older nodules the plasma cells are present in enormous numbers. There is an absence of the perivascular mononuclear infiltration and endothelial proliferation so characteristic of syphilis.

PRIMARY STAGE

The primary stage is manifested by a soft papule, soon becoming a painful ulcer, in which the *Treponema pertenue* can be found. The papule is usually extragenital and is not indurated. Its site depends upon the habits of the people. In the Pacific Islands it generally occurs on the lower limbs about the ankle. The natives fish on coral reefs by night and suffer many abrasions on feet and ankles, any of which provide a point of entry. The glands of the groin usually enlarge, but do not suppurate. In the Cingalese and southern Indian women, owing to their habit of carrying children astride the hip, the primary sore is frequently found there, while the children show the lesions in the crotch and about the external genitals. This primary sore, or "mother" yaw, often persists late into the secondary period and when healed can cause deformity from cicatrices.

* Read before the Nevada state meeting at Elko, Nevada, September 27, 1929.

SECONDARY STAGE

I found that a general eruption appears one to three months after the appearance of the "mother" yaw. In the brown-skinned native this first appears as a light fawn-colored stippling on the skin, with wide areas of healthy skin between the small clusters of stipple points. First of all, the stipple points forming one small group coalesce to form a papule, which exudes a serous material, and this on drying forms a yellow crust. If the crust be lifted a raw surface with red and yellow granulations is seen, hence the French name *framboesia* (a raspberry), which it resembles.

Some of the papules may coalesce with their immediate neighbors, or more papules come up between, till the whole body, including the eyelids, may be covered with papules and yellow crusts. The mucous surfaces are not attacked, which is one of the distinguishing points from syphilis. This stage lasts from three to twelve months. It is generally ushered in by malaise, pain in the joints, and fever. The eruption is not painful, but may itch, and has a musty offensive odor. When the eruption dries up by natural involution or from treatment, dark pigmented blotches are left at the site of each papule.

TERTIARY PERIOD

The tertiary stage has been denied by some observers, probably because of confusion with syphilis in communities harboring both diseases. It sometimes follows directly on the secondary stage, but usually is delayed and often appears years later. The characteristic lesions are gummatous nodules and deep ulcerations. While the mucous membranes are usually not attacked, most observers now agree that gangosa, an ulcerative condition of the nose and palate causing a horrible deformity, is a manifestation of tertiary yaws.

In the bones, periostitis is common, while around joints juxta-articular nodes appear. Multiple dactylitis is common. Maul, in a careful series of x-ray examinations, notes "rarefied areas, irregularly oval, with the axis parallel to the bone."

The blood picture presents a marked polychromatophilia. Leukocytes average 7000 to 11,000. The large mononuclears are increased. The lymphocytes are not increased as in syphilis.

RESPIRATORY SYSTEM

Most observers state that the lungs are not affected. In my experience, the following incident is significant. A ship came to the Gilbert Islands recruiting labor for a phosphate company. A careful medical examination was made of all volunteers and only those of exceptional standard were permitted to go, as the contract called for three years of service. Out of four hundred men, ten were returned in the course of a year with the diagnosis "pulmonary tuberculosis" written against their names by the medical officer of the phosphate company. These men had very little cough, slight loss of weight, and no evening rise of temperature. The tubercle bacil-

lus was not found in the sputum. They had been diagnosed as pulmonary tuberculosis on the slight cough and a blood-streaked sputum. Treatment by neosalvarsan immediately stopped all symptoms. Weight was regained and cough ceased. There were no further hemoptyses and in the next year none showed any signs or symptoms of pulmonary tuberculosis. All had had secondary yaws years before.

DIAGNOSIS

In the case of the primary sore, the locale and the fact that the disease is indigenous should cause search to be made for the *Treponema pertenue*. The sore is usually extragenital and unindurated.

The secondary eruption is pathognomonic.

In the tertiary stage of yaws greater difficulty is encountered in differentiating it from syphilis. The presence of juxta-articular nodes and the absence of endarteritis is confirmatory evidence of yaws.

The central nervous diseases, such as general paralysis of the insane and locomotor ataxia, do not result from yaws, but I have seen cases of paraplegia due to the involvement of the bones of the vertebrae.

The Wassermann test is no help as it is invariably positive. In connection with this it is startling to note that Dr. William W. Ford, in his textbook of "Bacteriology," states that the Wassermann test will differentiate between the two diseases.

The three main points in the differential diagnosis between yaws and syphilis are: (1) extragenital, unindurated ulcer, containing a treponema; (2) characteristic secondary eruption; and (3) the therapeutic test of the extreme rapidity of response to salvarsan treatment.

TREATMENT

When Ehrlich and Hata gave out their "606" they must have hoped for the results in syphilis that we get in yaws. Nothing is more dramatic than to see a patient covered with a secondary eruption so closely spaced as to be analogous to a confluent smallpox clear up after the first injection of salvarsan, and in five to seven days have only a few scabs left. These fall off and by the end of the second week, after the second injection, nothing but the dusky pigmented patches remain to mark the sites of the papules. When neosalvarsan appeared it was found to be superior because it was equal in results and without danger, and I have used it hypodermically on both adults and children.

Recently bismuth has been used with the same effect. In regions where mass treatment is necessary the question of expense naturally comes in. For my first two thousand cases the authorities appropriated only \$100 for salvarsan. The success attending the treatment of the first two hundred patients loosened government purse strings and my supplies later cleaned up about eighteen thousand people.

Recently bismotartrate of sodium, an inexpensive drug, has been found as effective as the arsenicals. G. L. Gilks of Kenya, Africa, uses 0.2 gram freshly prepared in solution, boiled for sterility and injected intramuscularly. Recent check on old cases shows over 53 per cent of complete cures after five years.

Treatment by iodids and mercury is useless.

COMMUNICABILITY

In the seaport towns of California many Pacific Islanders find work which brings them in close contact with the white population. The communicability of yaws has been proved both by direct contact and by flies. In Tarawa hospital the flies crawling on uncovered eruptions and ulcers were caught and the *Treponema* demonstrated in the washings from their legs. Castellani has infected a monkey by flies fed on yaws scrapings. Cases of yaws no doubt occur in our coastal cities especially among oriental children arriving or returning from a visit to their native land, and they can communicate it to children here with whom they come in contact.

SUMMARY

1. Yaws is endemic in the islands of the Pacific Ocean, and its easy transmissibility makes it a menace to the Pacific ports of this country.

2. The lesions of yaws occur in three stages and are easily confused with those of syphilis.

3. The primary lesion is usually extragenital and unindurated.

4. The secondary lesions manifest themselves as pathognomonic stipple points over the body which later coalesce to form characteristic papules. It is the exception for the mucous surfaces to be attacked.

5. The tertiary lesions are usually accompanied by juxta-articular nodes and there is an absence of the endarteritis noted in syphilis.

6. Cases of symptomatic pulmonary tuberculosis, in which the tubercle bacillus has not been demonstrated, and in which there is no history of syphilis, may be yaws and cure follows the use of salvarsan.

7. The Wassermann test is invariably positive and hence is valueless in differentiating from syphilis.

8. Iodids and mercury are useless therapeutic agents in the treatment of yaws, while the arsenicals and bismuth are specifics.

1001 Flood Building.

DISCUSSION

FRED R. FAIRCHILD, M. D. (Woodland Clinic, Woodland).—It would be presumptuous for me to attempt a scientific discussion of Doctor O'Reilly's contribution to the literature on differentiation between yaws and syphilis, since I have never been fortunate enough to recognize a patient suffering from yaws, even if I may have encountered the disease.

I can only congratulate this society most heartily that the paper has been presented, for those of us who are practicing on the Pacific Coast must recognize the fact that yaws, if infrequent in our territory

at the present time, will almost certainly be a disease to be reckoned with in the future.

The review of the subject by Doctor O'Reilly with his simple and clear differentiation between the disease and syphilis affords every physician the means, without extensive investigation, to prepare himself sufficiently to recognize this disease should he encounter it.

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ALFRED C. REED, M. D. (384 Post Street, San Francisco).—I have read with much pleasure Doctor O'Reilly's really excellent survey and summary of yaws. My own experience with this disease includes numerous cases in Ceylon, Malaya, and Manila. In its epidemiology there are certain peculiar features. It is today spreading rapidly in central Africa. While common in Ceylon it is rare in India and almost unknown in China. In two years' medical experience in south central China, I did not once see it. The possibility of its endemic establishment anywhere in the United States seems to me so remote as to be negligible. It is a true tropical disease which, in endemic districts, is not found in cool climates or above an altitude of about one thousand feet. The one recorded exception is its occurrence in Formosa between the altitudes of fifteen hundred and three thousand feet only. The influence of physical factors of climate on its transmission are but poorly understood.

In the United States two conditions preclude its endemic establishment even though imported cases are not rare in the southern states and even farther north. I have seen two cases brought in to San Francisco: (1) Unknown elements of climate, and viability of the spirochete seem effectively to prevent its spread or development locally. (2) A yaws lesion in the United States is almost certain to be treated promptly either as yaws or as syphilis, in either case being cured before serious risk or transmission could develop.

I am especially interested in the cases Doctor O'Reilly describes of respiratory conditions in men who, years before, had had secondary yaws, and whose cough and hemoptysis were promptly cured by neosalvarsan. One could wish for details of x-ray examination and sputum cultures for fungi in these cases. In view of Schöbl's work, a diagnosis of yaws could hardly be substantiated in these cases without more evidence, at least not without the demonstration of characteristic spirochetes either in the sputum or preferably from lung punctures. Schöbl has showed that immunity in yaws always results when the total duration of yaws lesions approaches seven to eight months. In these respiratory cases the diagnosis of yaws would require evidence that the patients had not suffered from yaws previously for more than a total duration of seven to eight months, as a longer duration would give immunity. Schöbl proved that up to this period necessary to produce immunity, superinfection is possible and that typical gangosa can be produced in monkeys by superinfection, a persistent yaws lesion on the nose extending directly through and by contiguity invading the deep structures of the nose.

I believe that Doctor O'Reilly is correct in considering yaws and syphilis as distinct but closely related diseases. This is contrary to the view of Stitt and Butler based on observation and experiment in Haiti. Unfortunately yaws does not seem to stand in the relation to syphilis that cowpox does to smallpox. Yaws is transmitted by the agency chiefly of fomites, personal contact, and flies. It requires an abrasion or breach of continuity in the skin for inoculation. It does not attack viscera or mucous membranes. Not only are juxta-articular nodules due to yaws and apparently at times also by syphilis, but the strange African disease, goundou, is held by some to be a manifestation of yaws.

In differentiation from syphilis, we find no help from study of the spirochete. Yaws, in general, has a softer initial lesion which is always extragenital, and persists along with the general eruption, there

being no intervening latent period. The general rash consists of lesions identical in structure with the primary lesion, which tend to appear in crops. The quick therapeutic test is valuable.



DOCTOR O'REILLY (Closing).—Once a well known author wagered that he could write a convincing book about New Guinea without ever seeing the country. With the aid of government blue books, trade reports, books of travel, novels, and an atlas, he wrote his book. It was convincing. There was only one mistake. The author introduced a tiger into his narrative. There are no tigers in New Guinea.

To me the question of moderate altitude and its marked effect upon the incidence of yaws is a New Guinea tiger. Somebody must have mentioned it once as every authority I turned up refers to it, but gives an exception or quotes one. Harper of Fiji states that 95 per cent of the population suffers from yaws, without giving any altitudinous exception. Fiji is a mountainous country, so is New Guinea. I have lived in both countries and I believe Harper.

THE LURE OF MEDICAL HISTORY

THE EXTRA ACADEMIC ORIGIN OF MEDICAL SPECIALTIES*

PART I

By LEROY CRUMMER, M. D.
Los Angeles

THE impression usually gained from reading the standard texts in medical history is that our honored profession has been one of continuous and uninterrupted advance hastened materially by the invention of printing and the intellectual awakening of the Renaissance. Even the titles of the short and attractive histories of medicine substantiate this impression: Dana's "Peaks of Medical History," Osler's "Evolution of Modern Medicine," and Faber's "Nosography"; all, by the way, most interesting contributions, imply this method of development.

There are, however, the valleys as well as the peaks, and the shadows unseen in a bird's-eye view may be as interesting, if not as important, as the prominent visible structures in the evolution of the art and science of medicine.

Academic medicine of the dark ages is pictured most fully perhaps at Salerno, where, under the enervating sun of southern Italy, the professor—Catholic, Greek, or Arab—gathered a group of students on the steps or in the patio to discuss the philosophies of medicine, and more particularly to comment on the writings of the masters of previous ages. At Montpellier the same method was used, and later at the famous Italian universities discussion and comment marked medical instruction which was but a part of the general curriculum and which was included in the training of many university students but mildly interested in medicine, either as an art or a science.

Medicine in many periods has suffered from an unfortunate type of leadership. The doyens of

the profession in the various centuries have been actuated in many instances by a feeling of superiority to their environment, and have been firm in the belief that that which did not come within their range of vision could not exist; with the result that a great many things which are now part and parcel of everyday teaching and practice were at some time considered distinctly foreign to the activities of the university-trained physician.

The centuries-long separation of medicine and surgery is too great a topic to be considered in a single brief lecture, but this separation naturally has played a great part in the development of medical ideation. Granted that both Hippocrates and Galen may have personally directed operative attack, even if they and their followers had no manual participation in the actual work, there was a period, lasting many centuries, when it was beneath the dignity of the physician of the long robe to allow his superior mentality to be confused with methods or details, or even indications for operative approach. During this time, operations were left to the consideration and the intelligence of the supposedly ignorant barber, though some of these by industry and application managed to add one word to the class designation and became barber-surgeons, to whom were entrusted practically all surgical manipulation as then known. This included not only the almost universal practice of phlebotomy in which the barber-surgeon was, of course, directed by the physician of the long robe, whose discussions of the indications and locations for bleeding fills many a large volume, but also the treatment of fractures, wounds and dislocations and, in fact, all forms of emergency surgery; more especially, it might be mentioned that all early discussions concerning the effect and treatment of wounds caused by the missiles projected by the newly discovered gun powder, were written by barber-surgeons attached to, but not a part of, the contending armies in the numerous wars of the time.

ORIGINS OF VARIOUS SPECIALTIES

While it is quite true that surgical writings were handed down in classic text from Salerno and Montpellier, and even in part from the more ancient authors, the texts of de Chaulliac, de Mondeville, and the four Rogers, and even John of Arden, were for the most part extremely theoretical, and written from the philosophical side of the medicine of the period, with but a single grain of wheat in a whole bushel of argumentative chaff. These books, written of course in Latin, sufficed for the little surgery the physician consented to know, but were of no benefit whatever to the ignorant one-language barber-surgeon, who evolved his own methods by empiricism and rule of thumb. But even the barber-surgeon could not escape the universal *furor scribendi*, and so antedating a little the mystic year, 1500, and extending over the next four decades, there were published a series of practical surgeries embodying the methods, rules, procedures and ideas

*Introductory lecture in the recently established department of medical history, Medical School of the University of California.

of this craft. Braunschweig, Gersdorf, Phrysius, Paracelsus, and Ryff, each wrote a "Great Surgery" during these forty years.

Braunschweig, founder of the so-called Strassburg school, seems to have had a training which included army service, and the usual wandering from town to town in pursuit of his calling, and to this he added some knowledge of the works of Hippocrates and Galen. He probably also spent some years as a distiller and apothecary. We know that the later years of his life were spent in Strassburg, and there in 1497 he wrote his celebrated book on surgery, richly illustrated with woodcuts by the best artists of southern Germany. No better evidence of the definite separation of medicine and surgery at this particular time can be found than in Braunschweig's definition of a surgeon:

"Whoever it is who wishes to study and learn the art of treating injuries, he will then be called a surgeon, as this name comes or springs from *Ciros* which is *Manus*, that is, just the same as hand, and *gius* which is just as much as working, wherefore, that means working with the hand, as the physician or body doctor does not know working with the hand."

The popularity of this first surgery in the vernacular was shown by the fact that there were five editions in the year in which the original appeared, three of which would now be called pirated editions, and a half-dozen editions printed later, including translations into English, Dutch, and Bohemian. In reality, this book set the standard which was imitated by the other works mentioned during the next fifty years, and while there were few improvements in the text, these later books attempted to rival and at times perhaps excelled in the beauty of illustrations which in all these books are of great importance, not only in the history of medicine, but also in the history of civilization.

Hans von Gersdorf, whose real name was Shielhans, with the aid of his publisher, surpassed Braunschweig in the beauty of the illustrations which were drawn by the most eminent artists of the time. His text has nothing remarkable, but each of the woodcuts had appended a little four-line verse, in many of which he expresses a fundamental tenet not unappreciated by the surgeon of today. One of these reads:

"To cure St. Anthony's fiery dart
 Removing arms hath certain art,
 Which is not in all men to do, 'tis true,
 So send your work to me to do."

Braunschweig and von Gersdorf were admittedly barber-surgeons; Phrysius occupied a little higher rank, that of city physician of Colmar. Walter Ryff was frankly only an editor, and a very good one—a compiler of other men's work, but he deserves great praise for his acumen and judgment, in making available to the German barber-surgeon the attractive works of the period, not only in surgery but in the other branches of medicine.

Paracelsus was practically the only man of his period who attempted to combine medicine and surgery and write upon and practice both divisions. His exact position as a directing factor in medical development has not yet, and probably never will be, actually determined between the idea of the "God of the Machine" as advanced by Browning, and held by most German authorities, and the contempt evidenced by many of his contemporaries, particularly the Swiss and French. There must be a middle ground which correctly represents his influence, but his attempts to reconcile in one individual the practice of surgery and medicine was unsuccessful, and these two arts continued their divergent ways for a long time in most countries, and even up to the present time in Great Britain.

Thus surgery was for a long time not a portion of medical training or practice, and even farther afield from the concept of the physician of the period were many of the surgical specialties which originated and persisted as "family secrets" and encountered the utmost resistance from the faculty when attempts were made to make them a part of medicine.

Facial surgery, especially nasal restoration, was a secret of the Sicilian family of Branca for centuries, and when brought to the attention of the profession by the publication of Tagliacozzi's great book in 1597, the work was not generally accepted, and even in Venice, his home, it raised such a storm of protest that after his death the poor old surgeon's body was torn from its tomb and carelessly thrown into a shallow grave in unconsecrated ground. While the profession remained obdurate, the method did not escape the notice of the clever English satirist, Samuel Butler, who says in *Hudibras*:

"Thus the great Tagliacozzi from the brawny part of
 porter's bum
 Made supplemental noses which would last as
 long as parent stem,
 But when the date of nock was out, off dropt the
 sympathetic snout."

This entire method, despite the fact that it was strongly defended by Ambroise Paré, was considered quackery of the first water until as late as 1840, when Dieffenbach had the courage to revive it.

Lithotomy.—The present-day great field of genito-urinary surgery had an equally humble origin. For some unexplainable reason, stone in the bladder was much more common in the seventeenth and eighteenth century than at the present, and the intense pain of this condition forced the sufferers to seek aid which was not generally available until late in this period from the surgeons of the long robe. The method of lithotomy was a family secret of the Colots during the sixteenth and seventeenth centuries, but the greatest achievements in this line were those of Frère Jacque, originally a day laborer, soldier, and finally a member of the Franciscan Order; he in-

vented lateral lithotomy, and became the rage of Paris, where he operated on both paupers and the nobility. An amusing story is told of an operation upon Guy Patin, than whom no one has been more firmly entrenched as leader of the ultra-conservative physicians. Patin suffered extremely from stone in the bladder and during the agony of one of his attacks was wont to beg for the last of the Colots, only to repudiate his wish when the attack was over. Madame Patin was able to anticipate to a certain extent the time of recurrence and with a woman's cunning arranged to have Colot concealed in the house at the time of an attack. Writhing in pain, the celebrated professor again prayed for operative relief, and this time Madame Patin was able at once to produce the operator. Of course, the sufferer tried to avoid the operation, but Colot, fully prepared, operated willy-nilly and successfully.

In envy of these methods introduced from the outside, the higher class barber-surgeons of Paris seized upon this procedure and developed such dexterity that, it is said, Mareschael, surgeon to Louis XIV, could do eight lithotomies in thirty minutes.

Herniotomy.—Herniotomy became an operation of general use by the improvements introduced through the genius of a peripatetic barber-surgeon, Pierre Franco, who, being a Protestant, was subjected to persecution during the years of the Reformation, and was forced to live alternately in the various towns of western Switzerland and eastern France. He was the first to operate for strangulated hernia, and by his ingenuity developed an operative procedure for the correction of inguinal hernia which saved the testicle, hitherto sacrificed. He was also a lithotomist of renown, and left as a heritage to the medical profession two books—a small one published in 1556, and a large one in 1561—which contain his remarkable contributions to basic surgery.

The predominating influence in this advancing position of operative surgery was the greatest of all the barber-surgeons, Ambroise Paré, who began his career in the lowest ranks of barbers, only by his genius and application to become the greatest surgeon of his period, mainly by his own industry, but not unhampered by the influence of the four kings to whom, in turn, he was successively surgeon in ordinary. He advanced through the various grades of his craft until in time he was both in title and in deed the greatest of the barber-surgeons. His life is an epitome of the constant struggle between discovery and controversy, for almost every one of his innovations was resisted by the faculty of Paris with that same prejudice and obstinacy which became the target for the ridicule of Molière a century later. To Paré we owe the use of the ligature instead of the hot iron in the hemostasis. He cast aside the complicated oils and plasters as application to wounds in favor of the simplest possible irrigations and dressings. He treated ulcers of the leg

with a tightly applied sheet of lead upon which mercury had been rubbed, a method so modern that it has not even been rediscovered. But greater than all was his attitude toward his patients, which is given in his frequently reiterated statement of faith, which might still be the guide of every physician and surgeon; "I treat them, God cures them." Quite uneducated in the general acceptance of the term, he began, nevertheless, to write in French quite early in his career, and at the age of thirty-five he published his first book on gun-shot wounds. He published at least eight other books before the appearance of his work on surgery in 1575, which was later translated into Latin, German, English and Dutch, and was the standard work on surgery for nearly a century; in fact, the last edition in French was as late as 1685, one hundred and ten years after the first edition.

Ophthalmology.—Ophthalmology also originated from the same level; the first real book other than certain slight theoretical discussions on diseases of the eye, was the "Augendienst" of George Bartsch, 1583. Bartsch, originally a barber-surgeon, brought together from his own experience methods of treatment of practically all diseases of the eye known even to the present time.

The classic books on the treatment of the eye were available only in Latin, of which the earliest and most important has recently been translated most delightfully by Dr. Casey A. Wood. All these conditions were most accurately described by Bartsch, illustrated with drawings by his own hand, and the operative procedures indicated were discussed in detail by this God-fearing reformer, whose influence on this branch of medicine was practically forgotten during the next century, when treatment of diseases of the eye became the especial province of traveling quacks, of whom the greatest was Sir John Taylor (1708-67), who toured Europe in a coach and four, the coach being decorated with painted eyes. He operated indiscriminately everywhere, although at home in London, when he was sufficiently impressive to be appointed oculist in ordinary to good Queen Anne.

The eager desire of the people for instruction concerning diseases of the eye was met by a long series of "popular books" on this subject, of which I will only mention two. Heinrich Vogther of Strassburg, barber-surgeon, court attendant, and probably the woodcutter responsible for one of the earliest fugitive sheets, wrote a little tract on the care of the eyes in the year 1538, on the title of which he signs himself "Augenartzt zu Dillingen," and Walter Bayley, Queen's Professor of Physic at Oxford, published about 1587 "A Brief Treatise on the Preservation of the Eyesight" which, as far as I know, is the first privately printed book with a page for personal dedication to the recipient, usually one of the nobility of his extensive clientele.

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CLINICAL NOTES AND CASE REPORTS

TREATMENT OF BARBITAL POISONING WITH GLUCOSE*

By GEORGE H. SANDERSON, M. D.
Stockton

IT has been our experience that in the past few years barbitol or veronal poisoning is a frequent cause of death, either accidental or suicidal, and that this is on the increase due to an increasing popularity of these drugs.

Johnson, Luckhardt, and Lighthill¹ have recently reported the results of treatment of six dogs that had been given large doses of barbitol, with glucose intravenously a few hours later. These animals recovered from their narcosis, on the average, in less than half the time which it took control animals that had not received glucose to recover. The authors ascribe the benefit to diuresis, resulting in increased elimination of the drug.

These authors also report one clinical case as follows:

"Mrs. R., age twenty, admitted to St. Luke's Hospital as a patient of Doctor Elliott at 1 a. m., March 3, 1929, in a semistuporous condition with a history of having taken sixty grains of barbitol three or four hours previous to admission. She was given 1500 cubic centimeters of five per cent dextrose solution intravenously. This promoted marked diuresis; in six hours she passed 1100 cubic centimeters of urine. By 6 a. m., five hours after administration, she could easily be roused, and by noon she showed very few symptoms from the drug."

I wish to report a case of apparently much more serious nature than the above, which, it would seem, certainly should have died, except for the administration of intravenous glucose.

REPORT OF CASE

J. L., age twenty-six, admitted to Stockton Emergency Hospital at 7 p. m. September 1, 1930, with a history (confirmed later) of having taken two hundred grains (forty tablets) of barbitol four hours previously, with suicidal intent. He was deeply comatose, unable to swallow, face flushed, deep stertorous breathing, and could not be roused by any means. Reflexes were present, but there was practically no voluntary muscular movement. At 7:30 his stomach was washed out, and Epsom salts instilled. Strong coffee was given both rectally and by mouth several times, as well as other stimulants, but without effect. Large involuntary bowel movement and involuntary urination occurred several times. Despite his treatment, patient became progressively worse. At 8 p. m. September 2, patient was cyanotic, pupils dilated, temperature 102.6, pulse 150, respirations 64. He appeared about to expire. Having just read the above-mentioned article, we decided to use heroic measures. Eight hundred cubic centimeters of 20 per cent glucose was given intravenously. An hour later, patient had a chill and became restless, moving about for the first time since entry. This continued throughout the night. At 6 a. m. patient began talking incoherently, and for the first time could swallow. The following

day, September 4, patient was semiconscious, but confused. On September 5 he was improved, and on September 6 was quite rational.

In calling attention to this method of treatment, the Chicago investigators have surely contributed to our knowledge of treatment of poisoning. However, in noting the dramatic effect of intravenous glucose in this case, I cannot believe, as they have assumed, that the benefit is due entirely to diuresis, but think that there must be some more definitely detoxicating action. In this case, excretion of urine was very free before glucose administration, and although profuse diuresis and diaphoresis occurred after administration, which on account of incontinence was not measured, I cannot see how this could account for the results without assuming some more specific action.

I am reporting this case immediately in the hope that, by calling the attention of the profession to the truly remarkable effect of this commonplace measure, lives may be saved.

809 Medico-Dental Building.

REFERENCE

1. Johnson, Luckhardt, and Lighthill. J. A. M. A. August 23, 1930, page 576.

CEREBRAL SYMPTOMS IN HYPERTENSION

By WILLIAM H. BARROW, M. D.
San Diego

THE relief of the various subjective symptoms, associated with hypertension, is often a baffling therapeutic problem. Any effective therapeutic measure of proved value is, therefore, worthy of note. O'Hare and Hoyt¹ recently reported their observations on the use of an extract of mistletoe for the relief of the cerebral symptoms of this disease. They mention the headache, dizziness, tinnitus and feeling of pressure in the head, associated with a certain degree of mental lethargy or confusion, which are well-known distressing manifestations in the symptom complex.

Of the one hundred cases reported, the use of mistletoe afforded relief of headache in 75 per cent and of dizziness in 74 per cent. Of four cases with tinnitus, two were relieved. Although there was a lowering of pressure in 25 per cent of the cases, the authors do not interpret this as evidence of any hypotensive action by the drug. It has been reported² that the drug given intravenously and in larger dosage does lower blood pressure by vasodilation and that there is a slowing of the pulse by vagal stimulation.

My own experience with this extract confirms the report of O'Hare and Hoyt as to its efficiency. Particularly gratifying to the patient is the relief from the muddled sensation and "pressure in the head" complained of. Although the systematic use of the drug as recommended has given good results, it has in certain cases been necessary to use it only at intervals, for one or more doses, as indicated for the relief of symptoms. Several patients have reported that two teaspoonsful, taken

* Report of a patient whose life was apparently saved by this measure.

as needed before breakfast, carried them comfortably through the day. This observation is at variance with the findings of O'Hare and Hoyt, who state that relief usually comes only after several days of treatment.

I have not in any of my patients observed a fall in blood pressure that would seem to be due to the use of the extract. Its use in tinnitus, "fullness in the head," dizziness, and so forth, not associated with hypertension, has afforded no relief. There has been no toxic effect noted in any patient, nor has prolonged administration thus far resulted in lessened efficacy.

There is certainly some question as to the therapeutic wisdom of artificially lowering blood pressure except where the pressure is suddenly and unduly elevated. Subjectively such procedure often produces physical depression that is more distressing than the original state. There is some satisfaction, therefore, in having available a drug which will relieve symptoms without other apparent systemic effect.

The preparation used and referred to in the report of O'Hare and Hoyt and in this article is *Intrait de Gui*, manufactured by Dausse et Cie of Paris, and distributed in this country by Fougere & Co. Because the drug does not seem to be generally known, it has seemed worth while to call attention to it and to thus stimulate further observation as to its value.

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2. Blisisma. Action of Mistletoe on Circulation. *Klin. Wchnschr.*, 4, 791. *Abstract J. A. M. A.*, 8, 1881, 1925.

UNIVERSITY OF CALIFORNIA HOSPITAL— MEDICAL DIVISION*

REPORTS AND DISCUSSIONS ON PATIENTS HAVING TUBERCULOSIS INVOLVING THE EYES

PATIENT: Miss K. D. Admission No. 78001; single; female; age twenty-two. Entered University of California Hospital medical teaching service September 1, 1930.

Chief Complaints.—Weakness for nine weeks. Pain along costal margin for five weeks.

Present Illness.—About four months ago—around May 1—patient had some pleuritic pain at left apex which lasted two days. Prior to this she had been in good health and she was in good health following this until nine weeks ago, when she began to feel tired and felt that she would like to go to bed. She continued to work for one week without much change in her condition. On arriving home one evening about eight weeks ago, she felt chilly and went to bed. She believed she had fever during the night. She remained in bed for four days without any decrease in her sense of fatigue, and then called a physician. He told her she was run-down, anemic, and had some fever, and advised her to stay in bed. He gave her a tonic, which she thinks contained some iron, and some powders. She followed his instructions for three weeks without any noticeable change in her condition. Her

physician then advised her to go to the mountains for a week or so to recuperate. About this time, five weeks ago, she began to have a dull pain under both costal margins which would come on when she would take a big breath, would sneeze, or cough. There was no radiation of the pain. She went to the country for a week. The pain did not leave, and her sense of fatigue was still present. Since then, four weeks ago, she has improved somewhat, but has not gotten entirely well. She has had no cough, sputum, hemoptysis, noctidrosis, nausea, or vomiting. Her appetite was poor at first, but during the past four weeks has been good.

Family History.—No familial tendencies known.

Previous History.—Residences: San Francisco all her life.

Diseases: Influenza at ages of 10 and 12. Others unimportant.

Systems:

Nose: Has had some nose-bleeds every three to six months for years. Would bleed for an hour or so each time. She noted that her eyes would have a blue cast to them after each bleeding.

Cardiorespiratory: Occasional palpitation.

Gastro-intestinal: Constipated for years. Takes milk of magnesia every night or so. Thinks she has hemorrhoids, which have bled on two occasions recently with bowel movements. Had an attack of pain in right lower abdomen two weeks ago which lasted only a short time.

Nervous and mental: Has always been nervous. Has been very irritable since onset of present illness, and has wept on several occasions without apparent reason.

Lymphatics: Node in right anterior cervical triangle was lanced two years ago. Ten weeks ago she noticed a swelling in the right axilla, accompanied by some pain, but no redness. The pain has gone, but the lump is still there and feels harder than at first.

Catamania: Flow has become more scanty since onset of present illness. Otherwise unimportant.

Other past history: Unimportant.

Physical Examination.—General: Patient is an agreeable, coöperative young woman who does not appear to be sick. She is more concerned about her nervousness than about her pain or fever.

Eyes: Normal except for fundus.

Left fundus: "Well toward the periphery and above a small branch of the superior nasal vein is a small, raised, woolly looking patch of exudate surrounded by edema. Conclusions: Miliary tubercle of the choroid" (Doctor Cordes).

Mouth: Tongue protrudes in mid-line, is tremulous, and slightly coated. Tonsils small. Mucous membranes seem normal.

Neck: Visible pulsations at base of neck on each side.

Skin: Soft, warm, with some sweating of palms and axillae. Scar of old incision on right side of neck.

Lymph nodes: No enlargement. In right axilla is a tubular mass about 1.5 by 2 centimeters which seems to be attached to a cord-like structure which passes from the axilla along the inner surface of the arm about one-third of the way to the elbow. It is slightly tender, movable, and seems to be subcutaneous. It appears to be a thrombosed vein.

Chest: Well-developed, symmetrical. Slight increase in depth of supraclavicular fossae. Expansion good and equal. Vocal fremitus slightly diminished at bases posteriorly. Resonance impaired at bases posteriorly. Breath sounds distant at bases posteriorly, and over anterior chests, and very loud over upper chests posteriorly. Whispered and spoken voice diminished anteriorly. Some coarse subcrepitant râles at bases posteriorly. Some pleural crepitation in mid-axillary line on right.

On several occasions after this, examination of the lungs by two other members of the staff was nega-

*This report gives discussions on patients presented at the Wednesday morning staff conferences.

tive. One week after entry, crepitant râles were heard at the left apex and over the upper portion of the left lower lobe.

Heart: Pulmonic second sound louder than aortic second sound. Blood pressure 124 systolic, and 70 diastolic.

Abdomen: Negative.

Breasts: Negative.

Back: Slight scoliosis to left in lumbodorsal region.

Extremities: Slight clubbing of fingers.

Reflexes: Normal, except absent abdominals.

Rectal and pelvic: Negative.

Laboratory.—Blood Wassermann: Negative.

Blood: Hemoglobin, 80 per cent (Sahli); red cells, 7,100,000; white cells, 9050; polymorphonuclears, 57 per cent; eosinophils, 2 per cent; lymphocytes, 24 per cent; transitionals, 15 per cent; smudges, 2 per cent; smear: some central pallor of red cells, polymorphonuclears show many young forms; no malarial parasites seen; platelets normal. Blood cultures taken when temperature was 38 degrees Centigrade, negative; taken when temperature was 39 degrees Centigrade, negative.

Second blood count: Hemoglobin, 70 per cent; red cells, 4,180,000; white cells, 5600; polymorphonuclears, 69 per cent; lymphocytes, 25 per cent.

Agglutination tests: Serum failed to agglutinate *B. typhosus*; Para A and B; *B. enteritidis*; *Br. mellitensis* and *abortus*; and *B. tularensis*.

Urine: Negative, except a slight trace of albumin on two occasions, but none on the third.

Sputum: Clear, watery, small in amount; many short-chain streptococci, and short, plump rods. No acid-fast organisms.

X-ray of chest, fluoroscopic and roentgenographic: "There are a large number of pin-head sized shadows scattered throughout both lung fields, indicating a widely disseminated infection—miliary tuberculosis. There are a few denser, larger spots in the lower part of the right upper lobe, suggesting that there is a primary lesion at this point." (Doctor Stone.)

DISCUSSION

Doctor Ruggles (X-ray Department): From our standpoint this is quite a characteristic disseminated pulmonary tuberculosis. All the spots are about the same age. The spleen is not particularly enlarged, but a little enlarged. I do not see that we can say that it is anything but acute disseminated tuberculosis.

Doctor Maisler (Resident, Eye, Ear, Nose, and Throat): It is not uncommon to see tubercles of the eye, and without tuberculosis any place else. The tuberculous choroid is of the miliary type. The lesion, as most of you saw, was on the nasal side, and was characterized by yellowish discoloration and edema. This picture is different from tuberculosis of other types in the eye. Under the microscope is shown a tubercle with the typical pathology, including giant cells. It is quite common to find the miliary type associated with meningeal involvement, but that seems to be absent here.

Doctor Allen: I do not think that there is a great deal to say. These cases are hard to diagnose, particularly in the early stages. The x-ray has been of very great help. To make the diagnosis difficult a certain number of cases of this kind give a positive typhoid agglutination. But as we see this case now with the x-ray films and the eye findings, there seems to be no question of the diagnosis.

Doctor DuBray: I can certainly concur in what Doctor Allen has said about the difficulty of diagnosis. The x-ray of the chest has been very helpful in this case; except for the fever, it constitutes the only definite findings that we have. I have read concerning the work that Dorothy Clark has done in growing tubercle bacilli in culture; but it required such a very difficult technique that a routine pro-

cedure could not be developed. We still have to rely on the clinical picture—the fever and the x-rays of the chest.

Doctor Kerr: Have you any suggestions about treatment?

Doctor DuBray: No, I haven't. I was just wondering what the prognosis of this case would be.

Doctor Hein: I might call attention to another form of tuberculosis of the eye sometimes associated with the miliary type. A man whom we saw with tuberculosis of the iris suddenly showed a number of tubercles in the fundus. The one thing that impresses me in these cases is the necessity of early diagnosis and the hopelessness of the case when it reaches this stage. We had two nurses some time ago, both of whom began their symptoms with a tired feeling. After one of them had been ill for three or four months, during which time she had had chest plates taken which were negative, and no fever to speak of, the films became positive. The other girl had no symptoms at all but tiredness. Both ran the usual course of miliary tuberculosis, and died. The prognosis is very bad.

Doctor Kerr: Doctor Schumacher, have you tried to grow the tubercles in culture?

Doctor Schumacher: No.

Doctor Hein: In two cases we have injected tubercles in the blood of guinea pigs, but with no results.

Doctor Kerr: It didn't seem to me that there was the usual tympanitic note which we often get in miliary tuberculosis. One may also hear some fine, consonating râles. Sometimes this is the first indication of a miliary tuberculosis with pulmonary involvement. The prognosis is pretty hopeless. I think that we should do everything we can in the way of rest and the usual treatment for tuberculosis; but there is not much else that we can do.

Dr. E. Anderson: Would you do a spinal puncture in this case?

Doctor Kerr: I do not think that we would gain anything; and we might do some harm.

Doctor Schumacher: Spinal fluid might be injected into a guinea pig with good results.

Doctor Kerr: Does she show any meningeal symptoms at all?

Doctor Steven: No.

Doctor Cordes: Isolated patches of tuberculosis of the choroid or of the uveal tract are not uncommon, and very often are associated with no demonstrable tuberculosis elsewhere.

In this case we have a miliary tubercle of the choroid, a small, ill-defined, yellowish, rather woolly looking patch in the choroid of the left eye, above one of the temporal vessels. This type changes very rapidly, coming up suddenly, and without pigment changes. This distinguishes the miliary tubercle from the usual tuberculous areas which change very slowly. Ordinarily only a few are present, although sometimes fifteen to twenty may be present in one eye. As pointed out by Doctor Maisler, histologically these tubercles, which are about one millimeter in diameter, possess the typical structure of a tubercle.

Miliary tuberculosis of the choroid is usually associated with a tuberculous meningitis; in fact, this is the first case I have seen in which this condition was not present. From the presence of the miliary tubercle of the choroid, one would feel that a generalized miliary tuberculosis is present.

Course since above discussion (Doctor Steven):

On September 7, 1930, patient first complained of anorexia and stiffness of the neck. On September 10 this was still present, and there seemed to be some spasm of the muscles of the neck. There was a questionably positive Brudzinsky, but no Kernig. She was transferred to the San Francisco Hospital, where she died about one week later of tuberculous meningitis. There was no autopsy. During the last week her headache increased, her neck became definitely stiff, and she developed cerebral symptoms. She was unconscious the last day of her life.

BEDSIDE MEDICINE FOR BEDSIDE DOCTORS

An open forum for brief discussions of the workaday problems of the bedside doctor. Suggestions for subjects for discussion invited.

ANEMIA

JOHN MARTIN ASKEY, LOS ANGELES.—Anemia properly exists when there is an absolute reduction in the total blood quantity in proportion to the body weight. Normally, there are about eighty-three cubic centimeters of blood for each kilogram of body weight. Anemia may exist with a normal erythrocyte count and a normal hemoglobin determination as in true oligemia such as immediately follows an acute hemorrhage.

Extreme dehydration by concentration may change an anemic blood picture into a normal or even polycythemic blood picture. These conditions are usually transitory, however, and ordinarily the true blood picture is reflected accurately by the determination of the erythrocyte count, the hemoglobin percentage and the study of the blood smear. Further blood studies should be made as indicated by clinical evidence and suspicion.

The actual blood picture at any time is the resulting quotient of the rate of blood regeneration and the rate of blood loss, whether by hemorrhage or hemolysis. Clinically, classification according to derangement of the function of blood formation or disturbance of the normal function of destruction, or actual loss through hemorrhage seems most helpful.

Minot's classification is simple but adequate.

1. Anemias due to blood loss.
2. Anemias partially dependent or wholly dependent on defective blood formation.
3. Anemias in which blood destruction is usually marked and where anemia is partially or wholly dependent on abnormal blood destruction.

Most of the anemias can be classified under one type, but many overlap. Blood loss may occur to complicate anemias essentially due to defective formation or increased destruction. Thus a patient with typical pernicious anemia may develop bleeding hemorrhoids.

In idiopathic aplastic anemia the anemia is primarily due to failure of formation of the red cells, due to depression first of the erythropoietic centers of the bone marrow. At a later stage, the platelet centers are involved, the platelets drop, and mucous membrane hemorrhages develop to further increase the anemia.

Conversely, anemia due to chronic blood loss such as results from menorrhagia, an oozing peptic ulcer, or bleeding hemorrhoids, may so tax the regenerative powers of the bone marrow as to produce a secondary depression with a reduction in blood formation.

I shall consider only the *anemias due to blood loss*. These may be acute or chronic anemias.

A massive loss of blood causes at first a true oligemia with no change in the blood count. With later blood volume restoration, anemia is evidenced by the reduced red cell count and lowered hemoglobin, with greater proportionate lowering of the hemoglobin. The bone marrow response is marked, and rapid proliferation occurs of the three cellular elements, the polymorphonuclear leucocytes, the platelets and the red cells. The polymorphonuclear leucocytosis may rise to thirty or forty thousand with a platelet count of one million and a reticulated red cell percentage as high as ten. The red cells are young with blasts present.

In an anemia due to chronic blood loss of small amounts, the bone marrow response is much reduced, with consequently only slight leucocytosis, moderate platelet increase and slight increase in the percentage of reticulated red cells. If the blood loss be unchecked, compensation by bone marrow hyperplasia may fail and a hypoplastic type of anemia result.

In the study of spontaneous hemorrhage from any site, be it epistaxis, oozing gums, melena, hematemesis or purpura, it is of primary importance to determine the status of the blood coagulation factors. The first sign of a hemorrhagic purpura, leukemia or other blood dyscrasia may be slight mucous membrane hemorrhage. One patient with incipient aplastic anemia due to benzol poisoning developed oozing of the gums. Severe pyorrhea was thought to be the cause and a tooth was extracted with disastrous hemorrhage.

Another patient first noticed petechial spots below the line of constriction of the garters on his calf. In a few days, there developed epistaxis and oozing of the gums. Blood study revealed an acute leukemia.

In addition to a careful study of the blood smear and a white cell count the determination of (1) the bleeding time, (2) the clotting time, (3) the platelet count, (4) the retractility of the clot and (5) the Rumpel-Leed tourniquet test for decreased capillary resistance usually will explain the cause of pathologic hemorrhage.

Treatment of anemia from blood loss should be directed at control and correction of any organic lesion, at correction of any blood coagulation disturbance, and stimulation of hematopoiesis by diet and iron therapy.

Most spontaneous pathologic hemorrhages are due to platelet deficiency and are best controlled by supplying that deficiency by whole blood. This is a temporary benefit only, of course, as the life of the platelet is only three to five days. Repeated transfusion, however, may tide the body over a crisis until regeneration occurs, as in the case of a secondary aplastic anemia, or it may be life

saving in preparation of a patient with chronic hemorrhagic purpura for splenectomy. In the acute leukemias it is merely a palliative procedure.

The anemias due purely to chronic blood loss are helped often by whole liver feeding. Liver extract has proved far inferior to the whole liver. Although the response is often slow, kidney, beef heart, muscle meat and certain fruits as peaches, apricots and prunes are definitely effective.

Paradoxically, spinach has been proved of little value.

Iron is valuable in chronic anemia due to blood loss where the cause has been removed. It obviously is ineffectual where hemolysis is the cause, or where blood loss is slowly continuous. Given in adequate, large doses (equivalent of one gram daily of metallic iron) in properly selected cases, iron is a valuable adjunct, particularly if supplemented by whole liver.

* * *

STACY R. METTIER, SAN FRANCISCO.—*Anemia particularly dependent or wholly dependent on defective blood formation* is usually chronic in nature and as a rule results from chemical, toxic or mechanical alteration of the bone marrow. In this group may also be included those anemias which result from imbalance of endocrine control and others due to a deficiency in some element essential to the maturation of red blood cells. Among the bone marrow intoxications are those resulting from poisoning by lead, mercury and arsenic, and intoxications resulting from tissue alteration such as occur in the kidney with nephritis or from the liver with cirrhosis. Mechanical alteration of the bone marrow may result from tumor metastases with a crowding out of the elements essential to blood formation. This is called myelophthitic anemia.

It has long been known that inadequate diet may result in the production of anemia. This is especially true in the rather vague and unexplained anemias occurring in females. Among the anemias of this type is one originally described by Faber, which is associated with a gastric achlorhydria and in some instances atrophy of the mucous membrane along the lateral margins of the tongue. This anemia is of the secondary type with a low color index. It is essentially an iron deficiency anemia and will respond dramatically to large doses of iron.

Our views concerning pernicious anemia have been greatly changed through the epoch-making contribution of Castle on the etiological relationship of achylia gastrica to the anemia of this disease. This investigator has shown that the disease is virtually a deficiency disease of a relatively new type. He states there is a lack in the secretion of the gastric mucosa of an element he calls the intrinsic factor. This intrinsic factor he has shown is neither the hydrochloric acid nor pepsin. He states further that this intrinsic factor is essential for the elaboration from beef protein of the antipernicious anemia substance. This substance he calls the extrinsic factor and is, he believes, probably nitrogeous in nature. We now know through the contributions of Minot

and Murphy that this antipernicious anemia substance is present in liver and kidney and that a dried extract of the liver is effective when used in adequate amounts in the amelioration of the anemia. Minot and Cohn and West working independently have also prepared an extract which when administered intravenously is also effective in the treatment of this disease. Peabody has shown that this antipernicious anemia substance causes a decrease in the number of megaloblasts in the bone marrow and that there occurs an increasing number of normoblasts. Thus the substance permits maturation of the red blood cells.

Aplastic anemia is also included in this group of anemias due to defective blood formation. There is a type originally described by Ehrlich in 1888 in which the etiological factor is unknown. This disease may be either acute or chronic in course with the development of a profound anemia, a leukopenia and petechial hemorrhages. The outcome is usually fatal. An aplastic type of anemia may be induced by certain toxic agents especially benzol and arsphenamin preparations.

The anemia associated with certain vitamin deficiencies such as occur in scurvy or pellagra may also be included in this group. The anemia of this type may be readily alleviated with the ingestion of large amounts of the appropriate vitamin.

* * *

HARRY WYCKOFF, SAN FRANCISCO.—The third form of anemia, or more properly, group of anemias in Minot's Classification, is defined as: "*Anemia in which blood destruction is usually marked and where the anemia is dependent partially or wholly on abnormal blood destruction.*"

That the forms of anemia included in this group are in fact anemias largely, or apparently entirely the result of excessive (abnormal) blood destruction is indicated by clinical and laboratory evidence of blood destruction in excess of normal, and further by evidences of corresponding regenerative response on the part of the bone marrow.

Some of the conditions included in this group are in part due to marrow deficiency but the converse is true in regard to some of the anemias included in the second group in this classification. As Doctor Askey has pointed out in his discussion, types may overlap.

I. Pernicious anemia. Diagnosis rests upon three general groups of findings: Blood changes, neurological signs, gastro-intestinal symptoms and signs. Important are: Papillary atrophy of the tongue; gastric anacidity (present even after histamin stimulation); impaired vibratory sense (legs); splenic enlargement. Findings in the blood may show considerable variation dependent upon the stage of the disease.

II. Conditions in which the anemia is usually of the simple type but which may sometimes exist as chronic anemia of the hemolytic type.

Examples are *Bothriocephalus latus* infestation, malignant tumors (particularly of the stomach), lues (which most often produces anemias of the simple chronic type).

III. Acute hemolytic forms of anemia in which the red cell count tends to fall rapidly so that the color index of the blood is usually relatively high. Regenerative activity is marked so that qualitative changes in the red cells are evident and immature leucocytes appear in the peripheral blood. (Leukemia.)

Anemias of this kind may occur in infections as with streptococcus, in malaria, after severe burns, in poisoning as with phenol, potassium chlorate, acetanilid, aniline.

IV. Chronic forms of hemolytic anemia. Hemolytic jaundice (acholuric family jaundice) in which the essential features are, anemia with signs of hemolysis, splenomegaly, jaundice from an early age, and abnormal fragility of the red cells.

There appears to be an acquired type of the disease in which the anemia predominates the jaundice in the picture and there is a suggestion of relationship to splenic anemia (Banti's Disease). This resemblance of splenic anemia cases to some cases of hemolytic jaundice, the occurrences of evidences of blood destruction (urobilinuria), and the improvement of symptoms in cases of both types after splenectomy suggests that splenic anemia might properly be included in the group of hemolytic anemias in this classification.

It is obvious that adequate discussion of the treatment of this important group of anemias cannot be undertaken in any limited space. In general the treatment rests upon three principal measures, liver therapy (with special reference to pernicious anemia), transfusion, and splenectomy in selected cases.

The Monastic Infirmaries.—The infirmary of the medieval monastery, with special reference to the Abbey of Westminster, was the subject of a lantern lecture delivered by Mr. Percy Fleming, emeritus professor of ophthalmic medicine and surgery, at University College, London, on February 21. The lecturer stated that there was no infirmary belonging to a monastery in this country standing at the present time; all that remained were some well-preserved ruins. But it was possible to reconstruct in the imagination the character of the monastic infirmary in the Middle Ages, and from the ruins of Furness Abbey in particular a great deal was to be learned with regard to the domestic offices of the monks. Generally speaking, the west end of a monastery was used for business purposes, and the east cloister was the site of the infirmary. Those who designed the monasteries were not unfamiliar with the principles of sanitation, and much thought was given to the lay-out and slope of the ground with a view to drainage. Attached to the monastery was always a garden devoted to the growing of herbs for medicinal purposes. Coming to Westminster Abbey, Mr. Fleming drew attention to the fourteenth century door in the middle of the east wall in the Little Cloisters; this, he said, was the door of the infirmary chapel, rebuilt after a fire. Incidentally, a very common ailment among the monks was disease of the shin bone, possibly brought about through much kneeling at a time before hassocks were available. It might easily have originated as a small abrasion, and as baths were very infrequent—at Westminster the allowance of baths was only two a year—possibly the neglected abrasion developed into more serious trouble. It was recorded at Westminster that in 1310 one monk had the trouble in both legs, and another

entry, under the date 1334, stated that a monk had surgical treatment for it at a total cost of forty-six shillings. Bleeding was a common form of treatment; there was always a group of people in the monastic infirmary who had recently been bled. Even apart from any illness, there was periodic bleeding in those days, and after it a certain amount of relaxation was allowed to the monks. The records seemed to show that they had a good time in the infirmary, and were anxious rather than otherwise to be bled, even more often than was necessary. The dean of Westminster, who presided at the lecture, spoke in appreciative terms of the perfection of the arrangements of the modern hospital, and the blessings which scientific medicine and surgery had brought. The difference between the treatment now available to the poorest and that which was given in the old times in the monastic infirmary was so immense that the two things could hardly be spoken of in the same breath. He added that at Westminster Abbey the infirmary was used for various purposes, not limited to the care of the sick or the convalescent. It was there that the young monks were regularly whipped, the idea apparently being that the place where health was restored to the body was the best place for correcting the soul. It was in the infirmary also that the "play-fellows" were housed. These were monks of over fifty years' standing, who were constituted censors of everything that went on in the monastery. It might be imagined, said Dr. Foxley Norris, how nice a state of things existed when a party of play-fellows—a most inappropriate name—lived at their ease in the best quarter of the monastery, their only occupation being to criticize the others. But the debt of medical science to the monasteries must not be forgotten. The monasteries were at the beginning of nearly everything. Whatever poor relief was distributed in those days came through the monastic infirmary. The history of England on the social side might be described as the gradual taking over by the public authority of what in its origin was voluntary and vouchsafed in the name of religion. But he trusted that the day was far distant when the voluntary hospital, which represented the spirit of the old monastic infirmary, but represented also the best that modern science and skill could command, crossed the same Rubicon.—*British Medical Journal*, 1, 406, March 1, 1930.

An Honor to Dr. Harvey Cushing.—The medical profession will be especially pleased to note the award of the Montclair Yale Bowl for 1930 to Dr. Harvey Cushing by the Yale Club of Montclair, New Jersey. The presentation will be made December 6 at the tenth annual barn party following a custom of the past decade which has recognized eminent graduates of Yale at intervals. In naming Doctor Cushing, the committee stated:

"We feel that Doctor Cushing is eminently entitled to receive this award which each year goes to a Yale alumnus who, by his own efforts, has made his 'Y' in life. Doctor Cushing is recognized in medical circles as one of the most outstanding of modern surgeons. He graduated from Yale in 1891 and has received two honorary Yale degrees since that time, one in 1913 and one in 1919. He is chief surgeon at the Peter Bent Brigham Hospital, Boston, and is the author of many books, including the 'Life of Sir William Osler,' which won him the Pulitzer prize.

"We have further selected Doctor Cushing as the recipient of the award this year because we have felt that it would be fitting to bestow the bowl upon a Yale alumnus who has made his 'Y' in scientific and professional fields. The award has not previously gone to any professional man or scientist, although Yale alumni include many distinguished leaders in these walks of life."

It is gratifying to know that the achievements of an eminent surgeon are recognized by a group which is not distinctly medical in its membership.—*New England Journal of Medicine*, October 30, 1930.

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Leaflet Regarding Rules of Publication.—California and

Western Medicine has prepared a leaflet explaining its rules

regarding publication. This leaflet gives suggestions on the

preparation of manuscripts and of illustrations. It is suggested

that contributors to this journal write to its office requesting

a copy of this leaflet.

A Proposed Amendment to the Medical Practice Act.—The California Medical Association Committee on Public Policy and Legislation, after further consultation with the California Board of Medical Examiners and the representatives of our undergraduate schools in medicine, will probably present an amendment to the medical practice act whereby our present-day California graduates in medicine (who by the rules of their colleges do not receive their M. D. degrees until the end of their internship year) will not be placed at a disadvantage with graduates of non-California schools which grant the M. D. degrees without an internship year requirement.

Under present conditions many of such non-California graduates come to California hospitals for voluntary internship experience, and during such hospital year, at their convenience, apply to and take the licensure examination of the California Board of Medical Examiners. Not infrequently, such non-California graduates then avail themselves of assistantships or openings in private practice at a time when our California graduates of the same year of graduation are still without their M. D. degrees and, therefore, non-eligible to take the examinations for licenses. For our California graduates must complete their hospital year of service before receiving their M. D. degrees, and then must bide their time until the next examination date of the California Board of Medical Examiners is reached before applying for a licensure examination.

Such a condition of affairs works a manifest injustice on our own graduates and practically penalizes them for the extra internship requirement which our three California medical schools demand. An amendment to the Medical Practice Act will therefore be prepared to do away with this injustice.

* * *

A State Medical Library.—In this column, in the November 1928 issue, page 343, a presentation was made of the reasons for using some of the surplus funds (in the neighborhood of \$200,000, and which through the annual and other license taxes on physicians had accumulated to the credit of the California Board of Medical Examiners) to bring into existence a state medical library. During the last legislative session further comment was made on this subject in CALIFORNIA AND WESTERN MEDICINE in the issues of March 1929, page 191, and May 1929, page 357. The basic thought in such a proposal rested on the principle that these reserve funds being now in excess of the requirements and needs of the California Board of Medical Examiners, and having arisen from special taxes on physicians, should not be diverted into the general expense funds of the state, to be used on roads or other state activities, but should go back to the physician citizens to be used in a state activity that would work to the betterment of California's public health interests. A state medical library seemed a fitting means by which such allocation of funds could be more than justified.

EDITORIALS*

THE CALIFORNIA LEGISLATURE AND SOME PUBLIC HEALTH PROBLEMS

Next Legislature Convenes on January 5.—On January 5 next, the forty-ninth California Legislature will convene. As heretofore it will consist of two houses, the Assembly and the Senate, but the senators will be in their places by virtue of a new method of selection, as outlined in the September number of CALIFORNIA AND WESTERN MEDICINE, pages 684 and 694. All citizens who take an interest in civic and political affairs will watch how this new arrangement of the California legislative houses works out in practice.

* * *

California Medical Association Measures.—Organized medicine in California, insofar as the California Medical Association is directly concerned, may be said to have few measures for which a sponsorship will be put forward. However, unless times have radically changed, then before the legislators reach their one-month recess period at the end of January, a goodly number of measures having a somewhat intimate relationship to the public health interests of California will have been introduced. In due time note will be made of such of these as seem to be important.

*Editorials on subjects of scientific and clinical interest, contributed by members of the California Medical Association, are printed in the Medicine Today column, which follows.

Fate of the 1928 Medical Library Bill.—At the last legislative session two years ago, a bill was submitted and was on its road to passage had not some unforeseen opposition come into being. It is possible that at the coming session of the legislature this same opposition may again be in evidence; but if so, it can probably be dragged more into the open and a demand made on its proponents to give more adequate and substantial reasons for their opposition than was to be had two years ago.

For those members who are not familiar with this situation, it may be stated that the State of California maintains at Sacramento a general library for citizens of the state. In the proposed law of two years ago it was stipulated that this central state library should be the depository and sole distributing depot for the books in this proposed state medical library. The library officials at Sacramento seemed, however, to be reluctant to assume the responsibilities of a division to be known as a state medical library, and which could be called upon to send books and journals by mail to the physicians of the state.

The Proposed 1931 Law.—As a concession to the attitude of these library officials and in an endeavor to still attain the major ends in mind, namely, to make it possible for any physician citizen in California to obtain literature and books from a state library, the draft of the 1931 state library bill will probably be changed somewhat. In the revised plan, while the central depository and headquarters of the state medical library will be at Sacramento, provision will be made whereby branch state medical library facilities may be maintained in connection with other medical libraries, such as that of the University of California at San Francisco and the Barlow Medical Library at Los Angeles. Due provision also will be made for mail parcel distribution of books, from either the central library or one of its major branches, so that medical literature may be brought to the offices of physician citizens who desire to avail themselves of these privileges. In short, the plan contemplates the utilization of certain surplus funds, raised through special taxes on physicians, to aid in the promotion of further knowledge and proficiency to such citizens in the same manner as the State of California carries on miscellaneous library work for other citizens from funds raised by general taxation sources.

It is hoped that the revised measure will be introduced and go on to passage and approval by Governor Rolph. The funds to be used are "excess funds" which the state board of examiners cannot use. Those funds, raised by special taxes on physician citizens, can be made to work for the benefit of citizens at large through the promotion of medical education and proficiency; and this in turn will make for a greater conservation of health and life for the citizens of California. With so straightforward a platform, there should be little reason for legitimate opposi-

tion. Members of the profession will be kept in full touch with the measure after its introduction in the legislature.

* * *

Important That Legislative Contacts Be Maintained.—Other matters of public health and medical profession interest will be commented upon in later issues of this journal. In the meantime, members and county societies can lay the foundation for later efficient coöperation by contacting with state assemblymen and senators who will go to Sacramento on January 5. These contacts should also be revived during the February recess, at which time specific bills could be further discussed.*

THE COUNTY MEDICAL SOCIETY—A BUSINESS ORGANIZATION

An Address by President Kinney of the California Medical Association.—The first of the special articles in this number of CALIFORNIA AND WESTERN MEDICINE is a paper under the above caption by the president of the California Medical Association, Dr. Lyell C. Kinney of San Diego. As stated by President Kinney, the economic phases of illness have been much discussed in recent years, both in committee reports and in medical and lay journals. These economic problems associated with illness, are not only many, but also most difficult of solution. This, because of their intimate relation to the social lives and habits of lay citizens, and because the economic phases of the practice of medicine have been carried on as expressions of guild service as in the days gone by, instead of as other businesses in a modern workaday world. In other words, the medical profession in its economic relationships has gotten somewhat out of step with the rest of the world, and needs to survey this field to find out what readjustments are necessary.

* * *

What Are the Rewards of Medical Practice.—The individualism of the work of a physician, as expressed in a practically necessary and in a very personal and intimate relationship between a doctor and each of his patients, seems to be a something from which the successful physician cannot escape even if he would, and successful physicians would not. For the major rewards to those who practice medicine in the highest and best sense are not always the monetary rewards, so much as they are the rewards which come from true and helpful service.

This last statement would not imply that physicians should not be properly and adequately paid in money for services rendered; but it does

* In the January 1929 issue of California and Western Medicine, page 50, the measure which was to bring into being the "California Department of Professional Standards" was discussed. That measure became a law and the California Board of Medical Examiners has gone under its jurisdiction. Because much discussion took place concerning its possible effects upon licensure, it has been deemed worth the while to print in the Miscellaneous Department of this number of California and Western Medicine the October report of the California Department of Professional Standards. The healing art and other licensure figures given therein should provide food for thought. Readers of California and Western Medicine are urged to glance through the report. See page 915.

mean with many physicians, that over and above such monetary compensations as come to them, is the reward which comes from loyalty to service for human fellows; and which type of service as far back as written records go, has peculiarly characterized true disciples in the profession of the healing art.

* * *

These Economic Problems Are of Large Scope. The officers of the California Medical Association in the last several years have given much study to the modern-day economic problems which the medical profession is everywhere called upon to face. These studies were undertaken in the hope of finding and of being able to offer for the consideration of California Medical Association members, plans for action which would make for better things. These problems, however, as we all more and more realize, are of such tremendous and intricate scope that remedial plans of a practical nature are not easy to find and outline.

* * *

A Special Merit in President Kinney's Paper. Reasons such as these make this paper by President Kinney of special value, because he starts with a county medical society, which is the basic unit in our whole scheme of medical organization. He then outlines things that can be done; and which, if done, will mean a step forward to a better understanding and solution of some of these problems which are so closely concerned with the welfare and status of members of the medical profession.

The paper has been given first place in the December issue not because it comes from the pen of the president of the California Medical Association, but because it deals with subject-matter which the editor deems as important or more important than any other that has a relationship to scientific medicine. For as has been said in this column on more occasions than one, the moment the economic structure of medical practice is rent asunder, that moment will also witness a real retrogression in scientific medicine. To truly promote scientific medicine, we must also pay proper attention to economic medicine.

* * *

No Physician Can Escape His Responsibilities in These Problems.—There is no member of the California Medical Association so profound in his medical knowledge and practice but has his own individual responsibilities in these big problems of medical economics with which the further development of scientific medicine is so intimately identified. It may be said that every member of the California Medical Association owes it to his profession and to himself to ask himself just how much he has done in the past and is doing in the present to aid in the solution of some of these problems. If each of us will do that, we will be in position to begin to talk of our intensive study of these matters, and from that kind of study and thought, plans for real progress are far more apt to result.

FEDERAL AND STATE FOODS AND DRUGS ACTS—INFLUENCE OF ADVERTISING METHODS THEREON

The First Pure Foods and Drugs Laws of Twenty-Five Years Ago.—In last month's number of CALIFORNIA AND WESTERN MEDICINE, in its Twenty-Five Years Ago column, were printed some excerpts upon the expose in *Collier's Weekly* by Adams in the year 1905. Those articles by Adams and others played a very large part in making it possible for the late Harvey W. Wiley, then chief of the United States Bureau of Chemistry, and other co-workers, to secure public support and to bring into being the Federal Foods and Drugs Act of that period.

A quarter of a century has since elapsed. These intervening twenty-five years have witnessed a most creditable advance in the protection of the public health because of federal and state laws then and since inaugurated, which are designed to prevent the sale of misbranded foods and drugs. There is still, however, a vast deal of work to be done, and in the solution of these problems of today and of the future, the medical profession, because of the expert knowledge of its members, has distinct obligations.

* * *

How Present-Day High Pressure Advertising Makes New Laws Necessary.—In recent years, with the advent of high pressure advertising, it has been found that the pure foods and drugs laws which were enacted twenty-five years ago are no longer adequate. Steps should be taken by medical and other organizations which are interested in the public weal and health to put more teeth in our federal and state pure foods and drugs laws. Then the greed of dishonest dealers in drugs and foods would bring to such individuals the punishment which their avarice and lack of conscience deserve.

Apropos of the influence of modern-day advertising, it is to be remembered that while foods and drugs distributed in interstate commerce cannot be misbranded on their container labels, without danger of federal interference, there is very little in our laws to prevent the makers or sellers of goods from giving, through printed or radio advertisements, false or misleading or even fraudulent information concerning the same.

Arthur Brisbane recently stated that an advertisement in order to be successful must have five qualities; namely, be seen, read, understood, believed in, and the article wanted. Brisbane stated further that if there was a failure in any one of these five qualities, then the advertisement would fail of its final purpose. In the matter of the protection of the public from impure foods and drugs we need laws that would make impossible the application of the first four of Brisbane's requisites. Then the decisive or final fifth—the "wanting the article" requisite—would not come into play for the financial benefit of fraudulent advertisers. Since fraudulent advertisers are only interested in advertising if the fifth or purchase

result is attained, such laws would probably put an end to much of such "misbranding advertising" of drugs and foods.

* * *

The Work of the American Medical Association Council on Pharmacy and Chemistry.—Few agencies have given greater aid to the United States Bureau of Chemistry in the efforts to protect the people from misbranded drugs than has the American Medical Association. The efficient investigation of drugs by the American Medical Association Council on Pharmacy and Chemistry has extended over many years; and more recently its Committee on Foods has started in to render equally valuable service as regards proprietary foodstuffs. But valuable as those investigations have been, they would have had far less effect had not publicity constantly been given to the Council's findings in the *Journal of the American Medical Association* and in the publications of the associated state medical societies.

* * *

The Part Played by the California Medical Association in This Crusade.—The California Medical Association may take a special pride in all this work because the founder of its official journal, the late Philip Mills Jones, may be said to have been one of, if not the outstanding militant medical leader in cleaning the pages of medical journals of obnoxious advertisements. During the last three years, in the Twenty-Five Years Ago column of CALIFORNIA AND WESTERN MEDICINE, has been printed excerpt after excerpt showing how valiantly and trenchantly the late Doctor Jones gave battle in these matters. His was a big and brave service, nobly rendered.

That good work which California helped inaugurate some twenty-five years ago should and will receive the continued support of California. If we were to make a further suggestion, it would be that the California Medical Association Committee on Health and Public Instruction might well keep in touch with the Federal and California Pure Foods and Drugs officials and with the American Medical Association authorities, so that in any prospective legislation designed to remedy weaknesses in our present federal and state pure foods and drugs acts the fullest support would be given by California legislators and congressmen to such needed amendments.

OPTOMETRY IN A SOUTHERN CALIFORNIA UNIVERSITY

Two Interesting Clippings.—Just as the copy for the December number of CALIFORNIA AND WESTERN MEDICINE was being prepared for the press, two interesting pieces of printed matter were received.

One was the first page of the second part of the Los Angeles *Examiner* of November 19. It contained a large three-column photo-cut of a University of Southern California co-ed undergoing a keratometer eye examination. The cut was illustrative of a news item which was cap-

tioned: "Weary Optics Cause Crashes, Says Expert—Man's Eyes, Still Primitive, Not Yet Adapted to Helter Skelter of Modern Traffic."

The expert referred to, and whose photograph appeared with that of the University of Southern California co-ed in the cut just referred to, according to the newspaper account, was "Dr. A. M. Skeffington of Chicago, internationally known authority on eyes and director of the Graduate Foundation of Optometry. He is conducting a series of clinics this week at the University of Southern California."

The newspaper reporter, among other things, quoted the expert as follows:

"The eye is the barometer of health, measurement being by the nervous stimulation as it affects eye response to color, he declared.

"'Adaptation of eyes to modern conditions—the preservation of visual efficiency—is the scope of optometry,' stated Doctor Skeffington."

* * *

Regarding Excerpts in the Miscellany Department of California and Western Medicine.—The other piece of printed matter was a copy of the *Optometric Weekly* of November 13, 1930. In that publication, mention is made several times of Doctor Skeffington and his work. For the information of ophthalmologists and other members of the California Medical Association who are interested, some excerpts are made from this publication and are printed in the Miscellany Department of this number of CALIFORNIA AND WESTERN MEDICINE under the caption, "Some Optometric Trends." (See page 913.)

Among other items therein, will be found one or two paragraphs concerning a proposed six-million-dollar publicity outlay to cover a four-year period campaign to be financed by members of the American Optometric Association; and which is presumably designed to place optometry in its rightful place before the American people. The work of the "Graduate Foundation of Optometry," as given expression under the supposed sponsorship of the University of Southern California, is probably an antedating or accessory publicity medium, independent of the six-million-dollar campaign.

* * *

University of Southern California Is Making an Interesting Experiment.—The authorities of the University of Southern California are seemingly in line or sympathy with some of these publicity efforts. This is perhaps due to the fact that the University of Southern California several years ago absorbed the Los Angeles School of Optometry and made it one of its departments, making provision to grant degrees in optometry to graduates of the department. The University of Southern California did this at the time that it is trying to launch a Class A medical school to revive its former medical department. It must be confessed that this dual effort of a presentation of a full-fledged school of optometry, side by side with a school of medicine seeking Class A rating from the Council of Medical Education of the American Medical Association and the Associa-

tion of American Medical Colleges is somewhat out of the ordinary. However, times are rapidly changing, and this new procedure may be nothing more than an advance or pioneer example. The experiment will no doubt be watched with much interest by the large California group of well-known alumni of the former University of Southern California medical schools, and by other medical and lay citizens who keep in touch with educational matters.

No matter how the experiment may turn out, and the friends of the university wish it well, the fact remains that the newspaper publicity above referred to, in connection with the "Graduate Foundation of Optometry" clinics is just a wee bit unusual, when considered as being under the sponsorship of so large and well known an institution as the University of Southern California.

Mention is made of these matters in this column, not in a spirit of criticism, but because the attention of the editor has been several times called to this unusual situation by members of the California Medical Association, who felt that this somewhat new departure in collegiate education warranted some comment and attention from members of the medical profession. Members of the eye sections of the state and county medical societies will no doubt watch these experiments with special interest.

A CALIFORNIA MENTAL HYGIENE SURVEY

Doctor Myers' Figures of California Institutional Inmates.—One of the special articles in this number of CALIFORNIA AND WESTERN MEDICINE deals with a California state mental hygiene survey. The writer of the article, Dr. Glenn Myers of Los Angeles, presents a general outline of the recent survey and urges all physicians and citizens to coöperate in the work.

The figures given by Doctor Myers on California's institutional population and its annual cost to the taxpayers are worthy of careful consideration. Among the large number of institutional inmates, few have so great a call upon our humanitarian instincts as those patients who may be classed as belonging to the mentally enfeebled. From the standpoint of "non" understanding supervision, few types of patients have had their care associated with so much tragedy and horror as have fallen to the lot of those of our unfortunate fellowmen who have been mentally ill. It is high time that a civilization which at times seems to take an almost inordinate pride in its accomplishments in material resources, should also awaken to its responsibilities in the care of these unfortunate citizens, whose proper supervision and treatment still remains one of the greatest of our public health problems.

* * *

Figures From a Massachusetts Authority.—A paragraph from a recent article by Dr. William

A. Bryan of the Worcester, Massachusetts, State Hospital, may be pertinent in this connection. He stated:

"The average daily population in mental hospitals in the United States is 395,407 compared to 331,359 patients in all other hospitals. In other words, there are more patients in hospitals suffering from mental disorder than all other kinds of diseases put together.

"The daily average of mental patients in hospitals increased from 1928 to 1929 by 26,372 compared with a decrease of 5793 in general hospital."

Bryan pointed out that "research had raised the recovery rate of one disease, general paresis, from nothing to 38 per cent." He went on to emphasize the need of a survey, such as is proposed for California, and stresses that "it is not buildings or equipment that will cure patients, but personnel," and that "the efficiency of the hospital of the future will be judged entirely upon the number of patients it is discharging back into the community, and not upon the smoothness of its organization."

✓ ✓ ✓

It is hoped that the efforts now being made in California for a better solution of some of the important problems which face us in the care of these mentally ill fellow citizens will meet with full success. Members of the medical profession, both as individuals and through their medical organizations, should maintain active contacts and cooperation in this important work.

Improper Advertising.—We append an excerpt from the bulletin of the National Better Business Bureau, Inc., which shows that improper advertising has aroused the resentment of the laity:

"The audacity of the American Tobacco Company in using advertising for its product Lucky Strike Cigarettes based on an untenable health appeal has proved profitable, but if it is safe to accept this advertising campaign as a criterion of the latitude advertising of the future will take, it is also safe to disregard consumer confidence in advertising as an entirely unnecessary element for advertising success.

"Lucky Strike advertising, in effect, is a prescription in which the doctor, who in this instance is the American Tobacco Company, prescribes cigarettes for public health.

"Lucky Strike advertising has frequently been criticized by competent authorities acting in the public interest, but criticism of the American Tobacco Company seems to fall on deaf ears. Its objective seems to be to earn immediate profits even though the means used to earn them are in conflict with fair dealing. Its record of unfair dealing is quite convincing."

Medical publications have been solicited for space in which to set forth the allurements of tobacco, but we are pleased to note that most of the journals would not respond to these proposals. Most publications dealing with professional matter need revenue, but those which sold space to encourage the use of tobacco have lost a certain degree of approval. We do not feel that there is any occasion to discuss the good or bad effects of tobacco in connection with this publicity.

The profession has adequate testimony upon which anyone may decide for himself what his personal attitude should be, but there can be no room for differences of opinion about the ethics of the American Tobacco Company as set forth in the advertisements.

As a matter of protest the medical profession might well pattern its demonstration in some degree upon that of the famous Boston Tea Party.—*New England Journal of Medicine*, October 1930.

MEDICINE TODAY

This department of California and Western Medicine presents editorial comment by contributing members on items of medical progress, science and practice, and on topics from recent medical books or journals. An invitation is extended to every member of the California, Nevada and Utah Medical Associations to submit brief editorial discussions suitable for publication in this department. No presentation should be over five hundred words in length.

Alleged Superiority of Normal Human Serum Over Convalescent Serum in Poliomyelitis.—Why pay \$10 per 100 cc. for convalescent human blood, when a more potent, more dependable antipoliomyelitis serum can be prepared from normal human blood? Why rush convalescent serum by aeroplane to a distant patient, when better therapeutic results can be produced with the serum or whole blood of any adult member of the patient's family? Why be disappointed over failure of routine quarantine measures to control this disease, when the causative agent is omnipresent in the human environment, only an occasional immunological defective ever developing symptoms? These are some of the unorthodox possibilities suggested by the recent experimental work of three Chicago physicians,¹ who, for the first time, have applied accurate quantitative methods to the serologic study of this disease. Of course, no final conclusion can be drawn from their data, till their alleged evidence is confirmed by other investigators, with other virus strains and in other environments. Their results, nevertheless, suggest a new immunological logic in infantile paralysis and offer new hope of its ultimate medical control.

Dr. Shaughnessy and his collaborators were struck by the conflicting clinical reports with convalescent poliomyelitis sera, by Dr. Zingher's alleged therapeutic success with an occasional normal human serum,² and by the total lack of quantitative serological study with adequate controls. In confirmation of the work of others, they found that full strength convalescent serum from poliomyelitis cases often, though not invariably, kills, inactivates or neutralizes poliomyelitis virus when mixed with it in equal proportions in the test tube. But contrary to previous expectations they found that but 40 per cent of these sera were of sufficient strength to show any demonstrable viricidal action in dilutions as high as 1:30, corresponding roughly to the maximum practicable therapeutic dose in human medicine.

With the sera of normal adults, however, they obtained very much better results, 80 per cent of them neutralizing the same virus in 1:30 dilutions. Of course, they did not make the mistake of assuming that this test tube titer is an accurate measure of therapeutic value, but from their experimental evidence they did feel justified in recommending that "clinicians study the value of normal sera, known to neutralize virus (in vitro), in the therapeutics of poliomyelitis."

Of equal interest is their observation that none of their sera of normal infants under two years of age showed any viricidal action whatsoever in dilutions higher than 1:2 while 90 per cent of the sera of insusceptible family contacts and of unexposed children over two years of age neutralized this virus in dilutions as high as 1:30. Apparently there is, in the environments studied by them, some omnipresent specific or relatively specific factor causing mass immunization of children before the beginning of the third year. Similar, though less rapid, mass immunizations are, of course, well known in diphtheria and scarlet fever.

Their work further suggests that the children who develop poliomyelitis are to a large extent immunologically defective, since but 30 per cent of them are able to develop permanent high titer viricidal antibodies. Among the insusceptible contacts and apparently unexposed normal children 90 per cent develop this high-titer humoral defense. Of course, this conclusion is invalid if it can be shown that the humoral viricide is not the sole or essential factor in antipoliomyelitis immunity.

W. H. MANWARING, Stanford University.

The Excretion of Analgesics and Hypnotics. Although combinations of hypnotics and analgesics in fixed proportions of the type of "Allo-nal" have been condemned on general grounds by the Council on Pharmacy and Chemistry¹ of the American Medical Association as being marketed with unwarranted therapeutic claims and with lack of scientific background, further substantial condemnation of such mixtures has recently been offered by Koppanyi and Lieberman.² Such mixtures were introduced originally on the basis that the constituents act synergistically, but this has been denied. It has further been claimed that the toxicity of the hypnotic component (usually a barbitol derivative) is antagonized by the analgesic (usually amidopyrin) and vice versa. There is no evidence, however, that this antagonism of toxicity exists in reality.

Koppanyi and Lieberman, in studying the rates of excretion and the duration of action of amidopyrin and barbitol, find that whereas about 300 per cent of the average fatal intravenous dose of amidopyrin is excreted in twenty-four hours on repeated administration of small doses, only about five per cent of the average fatal intravenous dose of sodium barbitol is similarly excreted. They point out that the difference in the

¹ Shaughnessy, H. J.; Harmon, P. H., and Gordon, F. B. Neutralization of the Virus of Poliomyelitis by Human Sera. *Proc. Soc. Exper. Biol. and Med.* 27, 742. May, 1930.

² Zingher, A. *J. A. M. A.*, 68, 817. 1917.

¹ Report, Council on Pharmacy and Chemistry, *J. A. M. A.*, 86, 1853, 1926.

² Koppanyi, T., and Lieberman, A. *Jour. Pharmacol. and Exper. Therap.*, 39, 177, June 1930.

rate of excretion of these two drugs, therefore, must result in progressively altered ratios of the concentrations of the separate constituents in the body with repeated administrations of the two drugs together. They state, "Even though it may be rational to administer antipyrin or anidopyrin with a hypnotic of the barbital type, the drugs should be given separately and according to the individual requirements, and not in the form of mixtures in fixed proportions, since the dose of the analgesic requires more frequent repetition than that of the hypnotic."

C. D. LEAKE, San Francisco.

PART I*

Isoelectric Contraction of Skeletal Muscle—Introduction.—During recent years notable progress has been made in the investigation of muscular contraction. The work of Einthoven, Lewis, Bishop, and others on the electrical events, the simultaneous recording of these together with the torsion wire myogram in Sherrington's laboratory, the myothermal investigations of A. V. Hill and co-workers and the biochemical studies of Hill, Meyerhof, Warburg, Wieland, Hopkins, and many others, may be integrated to give a fairly satisfactory picture of muscle function. The present review deals with the isometric twitch, which is not complicated by events occurring during shortening, such as the Fenn effect, and is designed to present a picture of electrical, mechanical and thermal events in chronological order, with the probable biochemical explanation of these.

The isometric mechanical response is most satisfactorily studied on mammalian or amphibian muscle *in situ*, with circulation intact. Contraction is best evoked by maximal stimulation of the motor nerve supplying the muscle. This causes simultaneous activity of the several muscle fibers, which is effected neither by reflex stimulation, nor by direct stimulation of the muscle itself.¹ It is obvious that if we are to infer the response of a muscle fiber from that of the muscle as a whole, the picture must not be distorted by asynchronous fiber activity.

THE LATENT PERIOD OF SKELETAL MUSCLE

The factual existence of the latent period has been adequately established by Fulton's analyses with the torsion-wire myograph. The earlier measurements of Helmholtz and others were ascribed by many to the inertia of the recording apparatus.

In a preparation activated by motor nerve stimulation, the latent period consists of three phases.^{1 2}

1. Conduction time in nerve.
2. The end-plate delay.
3. The latency period proper (the "true latent period" of Fulton).

The conduction time in nerve can be measured with great accuracy.³ The time in excess of nerve conduction time, which precedes the electrical response, is known as the end-plate delay.¹ It is probably due to a slowing of conduction in the fine terminal arborizations of the several motor nerve fibers, since Erlanger and Gasser have shown that in these fibers conduction rate is proportional to fiber diameter.^{1 4} There seems to be no physiological evidence of a special junctional substance.⁵

The latent period proper is initiated by the beginning of the electrical response.¹ The first investigator to appreciate the significance of the "action current" was du Bois-Reymond,⁶ long the dominant figure in the study of "animal electricity," but precise studies of its form and duration were only made possible by the recent development of precise electrical mensuration. For the muscle as a whole, the monophasic action potential consists of an initial crest followed by a long cataretic limb, lasting well into the period of contraction.⁷ Since fatigue modifies the initial crest less than the cataretic limb, Bishop and Gilson inferred that these features were representative of different processes. When non-polarizable microelectrodes are placed directly upon active fibers, the electrical process beneath each electrode is triphasic.⁸

There are several possible mechanisms for the production of the action potential, viz., a change in oxidation-reduction potential, an alteration in orientation of electrically polarized molecules, or an alteration in the permeability of some surface membrane.⁹ The energy changes involved in the production of these potentials are not significant in the muscular economy.¹⁰

The relationship between the electrical and mechanical responses is at present moot. Einthoven and Hugenholtz¹¹ found that the electrical and mechanical responses of cardiac muscle diminish simultaneously and progressively to zero, and Fulton reported similar parallel decreases in the case of fatigued muscle.¹ Further, Fulton observed parallel changes in these phenomena when the mechanical response was varied by altering the initial length of the muscle.

On the other hand, McSwiney and Mucklow¹² report that when the action current of muscle is made to charge a condenser, and when the condenser discharge is then measured, the electrical charge on the condenser varies directly with the duration of stimulation, and up to the fusion frequency, the electrical charge also is proportional to the frequency of stimulation.

¹ Fulton. Muscular Contraction and the Reflex Control of Movement. 1926.

² Cooper and Eccles. J. Physiol., lxi, 377, 1930.

³ Erlanger and Gasser. Am. J. Physiol., xcii, 43, 1930.

⁴ Erlanger. Harvey Lect., 1926-27.

⁵ Evans. Recent Advances in Physiology, p. 40, 1928.

⁶ du Bois-Reymond. Poggendorff's Annalen, lviii, 1, 1843.

⁷ Bishop and Gilson. Am. J. Physiol., lxxxii, 478, 1927.

⁸ Bishop and Gilson. Am. J. Physiol., lxxxix, 135, 1929.

⁹ Katz. Physiol. Rev., viii, 447, 1928.

¹⁰ Hill, A. V. Proc. Royal Society, xcii, B, 178, 1921.

¹¹ Einthoven and Hugenholtz. Arch. Neerl., v, 174, 1921.

¹² McSwiney and Mucklow. J. Physiol., lvi, 397, 1922.

* Ed. Note.—Part II of this contribution to this column will be printed in the January number of California and Western Medicine.

Now as Hartree has pointed out, one may regard heat production as a measure of mechanical response in isometric contraction,¹³ and it has been shown that heat production is not a linear function of duration or frequency of stimulation.¹⁴ Further, Bogue and Mendez¹⁵ reported that the amplitude of the R wave and of the mechanical response of the frog heart may vary inversely under several experimental conditions, although a closer correspondence was observed in the temporal aspects.

The work of Bishop and Gilson,⁷ in which the very precise cathode ray oscillograph was used, suggests that the catacrotic limb of the monophasic action potential is the electrical phenomenon most intimately associated with the mechanical response.

The latent period ends with the beginning of the mechanical response.

JOHN FIELD, Stanford University.

Cardiac Diagnosis.—"Prognosis in cardiac affections today is pitifully inaccurate because the broad principles and the outstanding facts have been lost to vision in a cloud of relative trivialities. Methods of examination, some useful enough in their proper sphere, many more of very dubious value, have been introduced. The subject has grown inordinately in complexity and the landmarks have vanished. Because a physician has possessed himself of an electrocardiograph, a polygraph, an x-ray machine, a blood pressure instrument, or some ingenious form of stethoscope, it does not follow that he has become competent to judge a patient's condition; the reverse is often the case. When the limitations of these devices are not fully comprehended they had better be left untouched than handled, as they often are, improperly. The signs which foretell a favorable prognosis, or the reverse, can be elicited at the bedside by simple means." Lewis¹ said this ten years ago, but it is just as true today.

The real purpose of a cardiologic examination should be to determine the functional capacity of the entire organ as a whole, not by standardized functional tests, for human beings are not standardized. The keyword in diagnosis today is function, and diagnosis with this in mind leads to proper prognosis and treatment, whereas anatomical diagnosis alone is sterile of other meaning. A cutaneous scar is not treated unless it interferes with function or for esthetic reasons; and, by analogy, there is no reason why a patient should be frightened over a valve scar, in many cases the trivial and insignificant result of an old, burned-out infection.

The stethoscope is regarded as the *sine qua non* of cardiologic diagnosis, yet Viko² says that a large percentage of Lewis' diagnoses are correctly made before he uses the stethoscope. In every case the history should be taken first, bringing out any evidences of cardiac fatigue, as

breathlessness (not sighing⁴ or an occasional deep breath), rapid onset of fatigue or chest or other pain on exertion. Cardiac pains are definite pains; they do not constantly change in nature or shift in location. As Lewis¹ says, "No patient who has a normal exercise tolerance has grave heart disease . . . the gravity of the disease in a series of real heart cases is proportioned to the degree of distress produced by a given amount of work more nearly than to any other observable phenomenon within our knowledge."

With definite cardiac enlargement, aortic or mitral signs, or auricular fibrillation, a deficient exercise tolerance (and this refers to muscular effort of any sort and not to standardized tests) is best attributed to the heart. In young patients without evidence of cardiac disturbance it should be ascribed to some other cause, such as tuberculosis, pyogenic infection, industrial poisons, physical or mental exhaustion, while in elderly subjects, even without cardiac signs, the deficient tolerance should, at least tentatively, be charged to this organ. In this latter class are the cases of angina pectoris, myocarditis, senile or otherwise.

The signs of congestive failure, such as cyanosis, engorged cervical veins, large, tender liver, etc., are well known, but are late signs.

The degree of cardiac enlargement is important, and here "palpation ranks before inspection and percussion, . . . the chief sign is the position and extent of the maximum thrust and the structures it involves."

Prognostically, only two valvular lesions are of significance, aortic regurgitation and mitral stenosis, these being the ones of which we can be fairly certain of a concomitant, extensive, infectious myocarditis, in the first case probably luetic, and in the second probably rheumatic. In aortic regurgitation the diagnosis is made "reliably as often at the pulse as at the base of the heart." In mitral stenosis, pathognomonic signs are a "diastolic thrill in the apical region and a diastolic rumble of low pitch, audible over the maximal thrust, and best heard, often only heard, in the recumbent posture after the action of the heart has been accelerated by exercise." Murmurs are usually systolic and, at the base, are usually functional; at the apex, and unassociated with other cardiac signs, they should be considered as functional also until proved otherwise, as, in spite of the frequency of the diagnosis, Cabot,⁵ in 1906 cases found at autopsy to be cardiac, saw only "seven cases of that rare condition, mitral regurgitation." Diastolic murmurs are usually organic.

Of the arrhythmias, the only really significant one which can be diagnosed without the electrocardiograph is auricular fibrillation, which may

¹ Lewis, Sir Thomas. On Cardinal Principles in Cardiologic Practice. Brit. M. J., p. 621, November 15, 1919.

² Viko, L. E. Heart Disease—Its Modern Diagnosis. California and West. Med., p. 78, February 1930.

³ Criteria for the Classification and Diagnosis of Heart Disease. Paul B. Hoeber, 1928.

⁴ White, P. D., and Hahn, R. G. The Symptom of Sighing in Cardiovascular Diagnosis. Am. J. M. Sc., 177, 2, 179, February 1929.

⁵ Cabot, R. C. Facts on the Heart. W. B. Saunders Company, 1926.

¹³ Hartree. J. Physiol., lxxv, 385, 1928.

¹⁴ Hartree and Hill. J. Physiol., lv, 133, 1921.

¹⁵ Bogue and Mendez. J. Physiol., lxxix, 316, 1930.

be considered to be present with a pulse rate of 120 or over, which does not increase constantly on deep inspiration, or which can be made to beat at such a rate, the pulse remaining irregular. Auricular flutter is very much less common and cannot be diagnosed definitely without the electrocardiograph.

Signs of active infection should be sought. These are pallor, not the typical aortic pallor, but a grayish, "sick" pallor, or the café au lait of subacute bacterial endocarditis; palpable splenic enlargement, "which is better evidence of active valvular infection than of congestive failure"; transient petechiae for which frequent search should be made in the conjunctivae, and buccal mucous membranes or skin; clubbing of the fingers; fever, constant or occasional; rapid, regular pulse while the patient is at rest; and gradual but steady loss of weight.

Lastly, the etiology must be sought, and will commonly be found to have been rheumatic, syphilitic, or other infective origin, or from senile changes.

An important point which has received some emphasis, but apparently not enough, is the manner of recording the cardiac diagnosis. The study of cardiac problems would be facilitated immensely by a uniform style, and there is certainly little objection to the form proposed by the American Heart Association.³ Not only is the latter desirable from the standpoint of uniformity in recording, but it also makes for greater thoroughness in the examination.

LOUIS BALTIMORE, Los Angeles.

Trichomonas Vaginalis Vaginitis.—*Trichomonas vaginalis*, a flagellate parasite, was observed in certain vaginal secretions by Donne in 1837. Many observers since then have described the organism in abnormal vaginal discharges. The origin of the infection is unknown. Whether it is the same as the trichomonas found in the intestinal tract is unknown. Its life history has not been worked out. It has been considered by most gynecologists as a nonpathogenic protozoan. Some still hold this view, but it probably causes a rather characteristic picture.

The best way to study the organism is by diluting a small amount of the secretion with normal salt solution on a slide with a cover slip. The parasites can easily be seen by the ordinary high-power lens in the fresh smears by their motility. The trichomonas is usually larger than a polymorphonuclear leukocyte but smaller than an epithelial cell. It is usually spindle-shaped or pyriform. The front end is rounded and from it protrude four flagella. An undulating membrane runs from the base of the flagella to the opposite end. The nucleus is eccentric and situated at the end near the base of the flagella.

The clinical picture is rather characteristic. Patients complain of a profuse discharge which is usually associated with burning and itching in

the vagina and external genitalia. Often the discharge has a peculiar and disagreeable odor. The external genitalia and vagina are reddened, sometimes fiery red. The region of the external os is red and bleeds easily. The discharge resembles gonorrhea pus, and contains pus, blood, epithelial cells, bacteria and trichomonas organisms. The discharge is usually greenish, yellow and foamy, and at times thin and watery. Diagnosis can be made by examining a drop of the fresh discharge on a slide.

Various types of treatment have been used, none of which are entirely satisfactory. A good method is to scrub the vagina with green soap; dry, and then coat the mucous membrane with a powder, using a powder blower. Good results can be obtained by using 15 to 20 per cent mercurochrome to paint the vagina, after cleansing and drying the mucosa. Iodin and silver nitrate must be used with great caution since they may increase the irritation. Treatment should be given at least three times a week at first. They should be continued during menstruation, for the presence of the menstrual blood seems to promote the growth of the parasites. A daily douche is taken, but not on the day the patient comes to the office, so that progress can better be observed. The patient is instructed to wash the external genitalia and rectum twice daily, and after each bowel movement, with green soap, being careful to wash away from the vulva instead of toward it. Treatment should be continued till symptoms and signs of the disease have disappeared and until smears are negative. The patient should be kept under observation for months, and smears made after each menstruation and further treatment started if organisms are found.

T. FLOYD BELL, Oakland.

Brightening of Walls in Mental Hospitals Said to Aid Patients.—Bright colors on the interior walls of institutions for the mentally afflicted help to bring about better mental attitudes, and may help toward cures among the patients, according to a statement on September 27 by the California State Director of Institutions, Earl E. Jensen.

Drab grays are being replaced in California with pinks, yellows, greens, blues and other bright colors, he said, as the result of a year's experiment in the hospital at Napa.

"If you could have seen the faces of the patients at Napa a year ago when the walls were the conventional drab gray," said Mr. Jensen, "and then could see them today since the walls have been tinted bright hues, you would realize what a tremendous influence color can play. So successful has the experiment proved that we have been repainting the walls inside all of our six mental hospitals as rapidly as possible this summer.

"We use the light hues, avoiding dark blues, greens and browns, and especially red, which is known to have a distressing effect. Pinks, light blues and greens, yellows and tans, we have found, are those which have the most cheering effect on the patients. And even the nurses and other employees of the institutions are responding to the change. These asylums no longer are the drab, depressing places they once were. We have great hopes that the colors will help us in affecting cures and in generally brightening the lives of those intrusted to our care."—*The United States Daily*, September 29, 1930.

STATE MEDICAL ASSOCIATIONS

CALIFORNIA MEDICAL ASSOCIATION*

LYELL C. KINNEY President
JUNIUS B. HARRIS President-Elect
EMMA W. POPE Secretary

OFFICIAL NOTICES Council Meeting

The next meeting of the Council of the California Medical Association will be held in the offices of the Association, Room 2004, 450 Sutter Street, San Francisco, on Saturday, January 31, 1931.

* * *

Proposed Amendment to Constitution

Second of two required publications of proposed amendment introduced at House of Delegates meeting 1930, to be voted upon by the House of Delegates, 1931 session.

Amend Article X, Section 11 of the Constitution, to read as follows:

"The Council, at the organization meeting thereof, shall elect a chairman, a vice-chairman, a secretary-treasurer, an editor and, in its discretion, one or more associate editors, each to serve for the term of one year. Nothing in this section shall be construed to prohibit the same person holding at the same time both the office of secretary-treasurer and the office of editor; but neither the secretary-treasurer nor editor shall hold any other office in the California Medical Association."

COMPONENT COUNTY SOCIETIES

ALAMEDA COUNTY

The Alameda County Medical Association held its regular meeting at Highland Hospital, September 15, at 8:15 p. m. The clinical evening offered by the staff of Highland Hospital, at which hospital cases are demonstrated, is an annual event to which the association looks forward with keen interest. Doctor McVey opened the program with a discussion of Banti's disease, presenting in the course of his discussion three cases illustrating the disease at various stages. Emphasis was laid on the fact that splenectomy should be done without delay as soon as the diagnosis can be made. Patients were presented, illustrating the fact that those who have had splenectomy early in the disease usually recover. The only case in this series with recurrent symptoms had a splenectomy late in the disease. Doctor Sargent showed some interesting cases of tumors of the humerus of both benign and malignant types, demonstrating by film the diagnostic x-ray characteristics of the commoner malignant types. He likewise discussed the therapeutic value of the x-ray in certain of these tumors. Doctor Sutherland showed two interesting cases of myasthenia gravis, bringing out the diagnostic points and discussing the new endocrine treatment of this condition. Doctor Dukes showed a case of malignant tumor of the ovary which had herniated, carrying with it practically the entire pelvic contents. The tumor was discovered during physical examination for another complaint. It was a pedunculated mass hanging from the inguinal region, apparently causing the patient little concern. Doctor Dukes

*For a complete list of general officers, of standing committees, of section officers, and of executive officers of the component county societies, see index references on the front cover, under Miscellany.

showed pictures of the condition prior to operation as well as the patient two weeks postoperative. Dr. T. C. McCleave reported a continuation of his studies on the use of bacteriophage in the treatment of typhoid fever. All cases of typhoid at Highland Hospital have been so treated with definite benefit in all.

GERTRUDE MOORE, *Secretary*.

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CONTRA COSTA COUNTY

The Contra Costa County Medical Society met on October 14 at the Hotel Carquinez, Richmond.

The first part of the program was given over to Dr. John W. Sherrick of Oakland, who addressed the society on "Toxemias of Pregnancy." The speaker gave a detailed yet very concise presentation of this important subject. The etiology, symptomatology, and the management of the various conditions classified under this subject were discussed in a very practical manner. The importance of proper prenatal control and the early application of therapeutic measures were explained in detail. Doctor Sherrick's paper was voted one of the most instructive discourses presented before this society for some time.

Dr. Clifford O. Bishop of Richmond was unanimously voted a member of the society on a transfer from San Joaquin County.

The second part of the program was devoted to a joint meeting between the society and the Woman's Auxiliary. Various problems of mutual interest were discussed and plans for closer cooperation between the two units were made. Mrs. J. M. McCullough of Crockett, vice president of the State Auxiliary and president of our own county unit, explained the history, aims and purposes of the Woman's Auxiliary. The sum of \$25 was voted by the medical society to further the work of the auxiliary.

The good work which is being accomplished throughout the state by the Traveling School Clinic along mental welfare lines was explained by Miss Scott, who urged the cooperation of the society members. This clinic will visit the principal centers of our county next month. The president, Dr. J. W. Bumgarner, conducted the meeting, which was well attended.

L. H. FRASER, *Secretary*.

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FRESNO COUNTY

The regular meeting of the Fresno County Medical Society was held after dinner at the Californian Hotel, October 7. Thirty-five members were present.

The minutes of the previous meeting were read and approved.

The following members were elected to membership in the society: Dr. S. V. Dragoo of Coalinga, by transfer from the Contra Costa Medical Society; Dr. D. V. Wiebe of Selma, by transfer from San Joaquin County Medical Society.

* * *

The committee on resolutions presented a report expressing the loss occasioned to the society and the community by the deaths of Doctors John A. Montgomery and James L. Maupin.

IN MEMORIAM

John A. Montgomery, M. D.
1889-1930

Whereas, It has pleased the Heavenly Father to remove from our midst John A. Montgomery, a member of this society; and

Whereas, His loss to the medical profession has been keenly felt because of the high type of character

which he possessed, and the excellence of his professional skill; therefore be it

Resolved, That the Fresno County Medical Society express its heartfelt sympathy to the family of John A. Montgomery; and be it further

Resolved, That a copy of this resolution be sent to his family and a copy spread on the minutes of the society.

* * *

James Lawrence Maupin, M. D.
1867-1930

Whereas, The Fresno County Medical Society and the community in which he has labored so well and faithfully for two score years has lost an honored member and citizen in the death of James Lawrence Maupin; and

Whereas, It is felt that his influence for good in our profession and the high position which he attained by his untiring devotion to his profession has never been equaled in this community; and

Whereas, All those who became his friends by his kind ministrations are now deprived of that warm fellowship and comforting presence; and

Whereas, The members of the medical profession not only of this valley but also of the State of California feel deeply the loss of a true professional associate and friend; therefore be it

Resolved, That the Fresno County Medical Society express to the family of James Lawrence Maupin its heartfelt sympathy; and be it further

Resolved, That a copy of this resolution be presented to the family and a copy spread on the minutes of the Fresno County Medical Society.

It was moved by Dr. T. Madden, seconded by Dr. G. Hare, that the resolutions be adopted.

* * *

Doctor Madden spoke urging the members to be generous and active in helping the Community Chest campaign.

Dr. Carlton Mathewson, medical officer of health of the city of Fresno, stated that although there had been very few cases of infantile paralysis in this city during recent months, there was no convalescent serum kept on hand. He advised the medical society to take steps to procure a supply of serum. On the recommendation of Dr. G. Hare that some action be taken in this matter it was moved, seconded and carried, that a committee be appointed by the president with full power to act in arranging for registration of all persons who have had infantile paralysis in the past few years that they be asked to volunteer as donors if needed and that whatever steps were necessary should be taken to insure a supply of poliomyelitis convalescent serum.

The president appointed the following committee: Dr. H. J. Craycroft, Dr. C. Mathewson, and Dr. J. M. Frawley.

Dr. Julian M. Wolfsohn of Stanford University gave a very interesting talk, which was much appreciated by members present, on the "Neuroses—Their Mechanism and Treatment." Doctor Wolfsohn kindly consented to outline the recent advances which have been made in the study of poliomyelitis.

* * *

The regular meeting of the Fresno County Medical Society was held at the Californian Hotel November 4. Forty-one members were present.

The minutes of the previous meeting were read and approved.

The following members were elected to membership in the society: Frank M. Sprague of Fresno, Reginald Archie Hunt of Riverdale, and Lester Ralph Nielson of Pinedale.

Report of Dr. H. M. Ginsburg: \$210 spent of the \$550 appropriated by the board of supervisors in procuring convalescent serum for poliomyelitis. Eleven

bottles of serum were received from the 2000 cubic centimeters of blood collected. Nine bottles have been used, one of them by an outside physician.

Dr. H. J. Craycroft reported the work done by his committee in procuring this serum. The Twining Laboratory centrifuged 250 cubic centimeters of blood at one time. His committee was continued.

Dr. H. Alderson of Stanford University showed cinema pictures of unusual skin lesions which were splendidly clear and well selected. Dr. H. Alderson later discussed some of the many forms of skin diseases shown on the screen. His talk and films were well received and much appreciated by the society.

J. M. FRAWLEY, *Secretary*.

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NAPA COUNTY

The regular monthly meeting of the Napa County Medical Society held on Wednesday, October 1, was preceded by an excellent dinner at Marino's Grill, Napa. The regular meeting was called to order by Doctor Dawson, the president.

Routine business was transacted and bills approved.

It was duly moved, seconded and carried, that the Napa County Medical Society urge the legislators and the incoming Governor to appoint a physician to the position of director of institutions.

It was also moved and carried that a resolution of sympathy be sent to the wife of Dr. W. G. Ogden, a member in good standing, whose death occurred last month.

Dr. Samuel H. Hurwitz, associate clinical professor of medicine, Stanford University Medical School, was the speaker of the evening. Doctor Hurwitz spoke on the "Present Status of the Asthma Problem" in a logical, interesting manner; following which it was discussed by the various members of the society.

Those present were: Members—H. V. Baker, G. I. Dawson, C. A. Johnson, D. H. Murray, R. S. Northrop, J. B. Robertson, Napa; M. M. Booth, St. Helena; W. L. Blodgett, Edward Love, Calistoga; I. E. Charlesworth, E. F. Donnelly, Imola; A. K. McGrath, Sonoma; R. E. Poole, Veterans' Home. Visitors—Doctor Anderson, St. Helena; Doctor Fry, Benicia; Doctor Fuller, Veterans' Home; A. C. Umhalt, D. D. S., Napa.

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The regular meeting of the Napa County Medical Society was held Wednesday, November 5, at the Veterans' Home, Colonel Nelson M. Holderman, commandant, acting as host and providing a bounteous turkey dinner.

The meeting was called to order by Dr. G. I. Dawson, president. The annual election of officers was held, resulting in the following members being elected: Robert S. Northrop, president; Herbert R. Coleman, vice-president; Carl A. Johnson, secretary-treasurer. Dr. C. E. Sisson of Imola was elected state delegate and Dr. M. M. Booth of St. Helena, alternate.

The applications for membership in the Napa County Medical Society for Doctors A. H. McLish, D. B. Williams, and A. E. Chapple, were unanimously accepted by the society.

The speaker of the evening was next introduced, Dr. G. K. Rhodes of San Francisco, whose topic was "Perinephritic Abscess of Acute Hematogenous Origin." Doctor Rhodes stressed the diagnostic feature of the x-ray picture which showed in these cases an obliteration of the psoas shadow on the affected side, blurring of the kidney outline, and scoliosis of the lumbar vertebra away from the affected side. Lantern slides were used effectively to demonstrate the diagnostic feature. An informal discussion followed the conclusion of his paper.

Members present—H. V. Baker, H. R. Coleman, C. A. Johnson, J. Robertson, Napa; M. M. Booth, K. J. Wood, St. Helena; C. A. Gregory, St. Helena

Sanitarium; A. K. McGrath, Sonoma; A. McLish, Richard Poole, Veterans' Home; C. E. Sisson, D. B. Williams, Imola.

Visitors—Dr. R. M. Ritchie, superintendent Mendocino State Hospital; Dr. H. S. Rogers, Petaluma; Dr. Holman, intern, Imola; Dr. Fry, Benicia; Dr. Frank Robertson, Napa; Dr. E. S. Anderson, St. Helena.

C. A. JOHNSON, *Secretary*.

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ORANGE COUNTY

The regular monthly meeting of the Orange County Medical Association was held in the staff room of the County Hospital on Tuesday, October 7, at 8:15 p. m. Dr. H. M. Robertson, president, presided and introduced Doctors J. L. Maroon and A. E. Chase of Santa Ana, who showed a very interesting case of syringomyelia in a young boy. Doctor Maroon gave a complete history and his results of a most thorough physical examination of this patient, indicating the most important symptoms and signs to be:

1. A progressive muscular atrophy.
2. Disturbances of sensibility, especially anesthesia to pain and temperature, but not touch.
3. Trophic disturbances, including arthropathies.
4. Scolioses.

Doctor Chase explained in detail, by the use of lantern slides, the bone and joint changes in this disease, giving the differential diagnosis between this condition, and tabes dorsalis where a charcot joint has developed.

The next speaker of the evening was Dr. John C. Wilson of Los Angeles, who spoke on the "After-Care of Anterior Poliomyelitis." He stressed the importance of dividing, in general, the treatment into two phases: first, during hyperesthesia, of placing the muscle group at rest in a neutral position and using some form of heat; and second, after hyperesthesia, a gradual muscle reëducation by a trained person.

* * *

The Orange County Medical Association held its regular November meeting Tuesday, November 4, at the Episcopal Church, Santa Ana, at 7 p. m. A delicious dinner was served to approximately fifty members and guests.

We were honored at this meeting by the presence of Dr. Lyell C. Kinney, president of the California Medical Association, and Dr. Mott H. Arnold, counselor for the first district. Following the dinner, Doctor Kinney gave an interesting and forceful address. He urged that, in addition to the scientific side, the county society should be a strong business organization; that we should make our knowledge of the business of medicine just as complete as our knowledge of the science of medicine.

Dr. Mott Arnold was then introduced and talked on the policy followed by the State Association in dealing with the Coffey-Humber cancer research work. He explained the action of the councilors in not publishing the letter from the Hewlett Club.

After some discussion regarding the above, it was moved and seconded that the Orange County Medical Association go on record as approving the action taken by the councilors in regard to the Hewlett letter.

The society was then called to order by President Robertson and the minutes of the October meeting were read and approved. The first reading on the application of Dr. Charles Sylvester O'Toole for membership was heard. The applications of Doctors Holm Holmson, Roland J. Harvey and Julius C. Osher were read for the second time, and by ballot all three of these applicants were admitted as members in good standing of this association.

The speaker of the evening was Dr. E. D. Kilbourne of Santa Ana, his subject being "Coöperation in the Early Diagnosis of Surgical Conditions." This was a very practical paper and dealt with the common things one finds in medicine and surgery. Doctor

Kilbourne stressed the point that most of our errors in diagnosis were errors of omission rather than of commission. He reminded us of the fact that early diagnosis of tuberculosis is essential; that growing pains of children are often tuberculosis of the spine; that skin tests are valuable only when negative; that 75 per cent of all cases of cancer of the rectum have been treated for hemorrhoids; that when a patient with appendicitis dies someone has blundered; that in intestinal perforation of typhoid the blood pressure rises sharply; that in osteomyelitis early x-ray is of no value and that carcinoma of the breast can usually be diagnosed by skiagraph in profile. This paper was fully discussed by Doctors Newkirk, H. A. Johnston, Olson, Hawes, Hollingsworth, Gobar, and Walker.

All business of the society having been taken up, the meeting adjourned.

HARRY G. HUFFMAN, *Secretary*.

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PLACER COUNTY

The Placer County Medical Society held its annual meeting in Auburn, Saturday evening, November 15.

The following officers were elected: R. H. Eveleth of Roseville, president; L. B. Barnes of Newcastle, vice-president; Robert A. Peers of Colfax, secretary-treasurer; Charles J. Durand of Colfax, associate secretary.

Delegate to the 1931 meeting of the California Medical Association, C. C. Briner of Auburn. Alternate, Carl P. Jones of Grass Valley.

ROBERT A. PEERS, *Secretary*.

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SACRAMENTO COUNTY

The fifth meeting of the year 1930 of the Sacramento Society for Medical Improvement met at the Senator Hotel June 17 at 8:45 p. m. Forty-two members were present. The president, Dr. Gustave Wilson, called the meeting to order and the minutes of the last meeting were read and approved.

There were no case reports.

The first paper of the evening, "Lipiodol Injections of Uterus and Tubes," was presented by Dr. George Joyce Hall. The question of sterility is often brought to the family doctor for answer, and this timely paper was necessary to stimulate thought on this subject. In olden days it was believed that sterility was the woman's fault; today, however, we know that the male member of the family is often to blame for the lack of children. In studying sterility in women it is important to know the condition of the uterus and the patency of the tubes. Doctor Hall outlined methods by which this study is carried on, discussing especially the injection of lipiodol into the cavity of the uterus and out into the tubes. Lipiodol is opaque to the roentgen ray and, therefore, lipiodol injected adnexa shows clearly on the x-ray film. This method is used not only to demonstrate patency of the tubes, but other malformations and pathological conditions in the womb and tubes. Slides made from x-ray films demonstrating these points were shown on the screen. The paper was ably discussed by Doctors Cook, Rulison, and Beach.

Dr. W. M. Wilder presented the second paper of the evening, which was an informal report on the use of spinal anesthesia in the urological service at the Sacramento Hospital. The *modus operandi* of the anesthesia was discussed. The simplicity of the technique and the uniformly excellent result obtained by Doctor Wilder in his series highly recommend this form of anesthetic as a method of choice in elderly patients, especially where the operation is urological in nature.

This paper stimulated discussion, and Doctors Hale, Beach, Dillon, and Rulison especially expressed their appreciation.

The application for membership of Dr. Beaumont Brown was read for the second time. Doctor Brown

was voted into the membership of the Sacramento Society for Medical Improvement.

Dr. Cordes W. Ankele transferred from the Siskiyou County Medical Society and was voted into the membership of the Sacramento Society for Medical Improvement.

After reading several communications, there being no further business the meeting adjourned to a buffet luncheon.

* * *

The sixth meeting of the year 1930 of the Sacramento Society for Medical Improvement met at the Senator Hotel, September 16, at 8 p. m. Fifty-four members were present. Dr. Gustave Wilson called the meeting to order, and the minutes of the last meeting were read and approved.

The paper of the evening, "Some Aspects of Clinical Endocrinology," was presented by Hans Lisser, associate professor of medicine at the University of California Medical School. He spoke of many endocrine disturbances, the symptoms, some of the pathology, and the treatment (if any treatment existed) for each condition.

Doctor Lisser's lecture was illustrated with lantern slides, which enhanced the interest of his paper. Pictures were shown of hypophyseal infantilism, showing the skeletal undergrowth and sexual infantilism; and of hypopituitarism of adults, characterized by the girdle obesity and diminished menstrual flow. An interesting case of postpartum tetany was discussed and the excellent results of Collip's parathyroid extract as a specific in this condition was demonstrated. One case of excessive parathyroid secretion was shown on the screen. Doctor Lisser just mentioned this case as very rare, and a new one in the classification of endocrine diseases. He stressed the fact that the cretinism found in Switzerland is different from childhood myxedema, which is found everywhere. Childhood myxedema is characterized by skeletal undergrowth and mental retardation. Doctor Lisser said that if these cases were treated early with thyroid substance much could be done to prevent the mental deterioration. Treatment of thyroid deficiency in adults was often crowned with success. The attention of the doctors was called to the fact that many adults have a mild hypothyroidism which often is unrecognized unless one is on the watch.

The paper was enjoyed by all present, and active part in the discussion was taken by Doctors Gundrum, Reardon, O. F. Johnson, Babcock, Brendel, Lindsay, and Pitts.

Applications for membership were read for the first time from Doctors H. E. Lorenze, Ralph S. Graham, and Hilding R. Johnson. Two delinquent members were reinstated into good standing by payment of dues.

After the communications were read, there being no further business the meeting adjourned.

FRANK WARNE LEE, *Secretary*.

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SAN BERNARDINO COUNTY

The first fall meeting of the San Bernardino County Medical Society was held at the County Hospital Tuesday, October 7.

Dinner was served at 7:30 p. m.

The first vice-president, Dr. A. T. Gage, presided in the absence of the president, Dr. E. L. Tisinger.

The president called attention to the financial report on the back of the menu which served as the secretary's report.

The election of officers for the following year then took place, the following officers being elected:

President, H. G. Hill, Redlands; first vice-president, W. F. Pritchard, San Bernardino; second vice-president, C. L. Curtiss, Redlands; secretary-treasurer, E. J. Eytinge, Redlands. Delegates for state meeting: D. C. Mock, Redlands; E. L. Tisinger, San Ber-

nardino. Alternates: W. Savage, San Bernardino; F. F. Abbott, Ontario.

The dues for the ensuing year were fixed the same as for the preceding year at \$15.

The minutes of the last meeting were read and approved.

The following two changes in the by-laws were read and will be voted on at the next meeting:

1. If the annual assessment of dues payable to this association by any member of this association is not paid on or before April 1 of any year, such member shall automatically lose his membership in this association as of April 1 of such year. The council of this association, in its discretion, upon payment of such unpaid dues, and any other assessments or dues accruing thereafter, may, at any time, reinstate such member.

2. Nominations of members as tried out this year having proved unsatisfactory as shown by less than one-third of the members voting, it was moved by Dr. D. C. Mock and seconded by Dr. F. Moor that the by-laws be changed and Article 14 added to as follows: "Each year at the May meeting a committee of three shall be nominated from the floor, one member being appointed by the president as chairman. This committee is charged with submitting a list of nominations for the various offices and reporting back to the secretary within thirty days from the date of their appointment. The nominations shall be submitted for vote at the annual meeting in October."

The president's address not being available, Dr. Lyell C. Kinney, president of the California Medical Association, was next introduced and he gave an unusually fine address entitled, "The County Medical Society a Business Organization."

At the conclusion of this paper a brief general discussion followed after which the meeting adjourned at 10:30 p. m.

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The regular meeting of the San Bernardino County Medical Society was held November 4 at the San Bernardino County Hospital. The meeting was called to order by the first vice-president, Dr. W. Pritchard, at 8:15 p. m.

The following change in the by-laws was passed by unanimous vote:

"If the annual assessment of dues to this association by any member of this association is not paid on or before April 1 of any year, such member shall automatically lose his membership in this association as of April 1 of such year. The council of this association, in its discretion upon payment of such unpaid dues, and any other assessments of dues accruing thereafter, may at any time reinstate such member."

The proposition in regard to the nominations of officers for the coming year was held in abeyance for future consideration.

The program of the evening was then entered upon:

Hysterectomy—A Technique and Analysis of Six Hundred Cases, by Dr. E. C. Moore and Dr. D. G. Tollefson. Cinematographic and lantern slide demonstration.

Radium and Roentgen Therapy of Uterine Fibromyomata, by Dr. Albert Soiland and associates.

Following this program the president of the San Bernardino County branch of the Woman's Auxiliary to the California Medical Association, Mrs. F. Clough, spoke briefly.

Refreshments were served at 10 o'clock.

About sixty members and guests were present.

E. J. EYTINGE, *Secretary*.

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SAN JOAQUIN COUNTY

The stated meeting of the San Joaquin County Medical Society was held Thursday evening at eight o'clock, October 2, in the Medico-Dental clubrooms, 242 North Sutter Street, Stockton.

The meeting was called to order by Dr. Henry Rohrbacher, vice-president. The minutes of the previous stated meeting were read and approved.

On motion of Dr. Dewey R. Powell, duly seconded and carried, the constitution of the local society was amended to correspond with that of the California Medical Association relating to the lapsing of membership.

Dr. Linwood Dozier made a report on the progress of the committee appointed to consider the matter of a medico-dental collection and rating bureau. The committee had met with the directors of the two societies and again with the combined membership in a special meeting September 26. No action was taken at either meeting. He said that \$361 would be needed to equip the office and start the work. On recommendation of Doctor Dozier and motion of Dr. Percy Kallegos, duly seconded and carried, the matter was referred to the board of directors of the San Joaquin County Medical Society for definite action.

The scientific program was opened with moving pictures of an appendectomy and a high gastro-enterostomy.

The first paper of the evening was one by Dr. Samuel Hanson on "A Simplified Method of Introducing the Carbon Dioxid in the Tubal Patency Test."

Doctor Hanson demonstrated his apparatus by means of which he forces carbon dioxid into the uterus to test the patency of the tubes. In one bottle is ordinary soda water (water charged with carbon dioxid gas), in the other the carbon dioxid gas. As the water in the charged bottle is forced into the gas bottle, the gas is in turn forced into the uterus and out the tubes. The merits of the apparatus are its simplicity, ease of assembly, and use of products easily obtained at any soda fountain.

Dr. Harry Oliver of San Francisco gave a paper on "Agranulocytosis." Doctor Oliver stated that agranulocytosis was first described by Shultz in 1922. Since then there have been one hundred fifty cases reported. However, there must have been many other cases classed under various diagnoses, such as acute glandular fever, salvarsan poisoning, diphtheria, and others.

The disease may start after a short illness before ulceration or suddenly while the patient appears strong and well. The early symptoms are a high continuous fever (102 to 104), high pulse, malaise, dyspnea and chills, sore throat or gums. It may follow the extraction of teeth. Ulcers of the mouth and throat and sometimes in the rectum or vagina are characterized by the dirty gray base with overhanging edges, little demarcation, and no cellular reaction in the surrounding tissues. There is no hemorrhage and no glandular involvement. It appears as a sudden acute infection, usually of the mouth and throat in middle-aged women. The large majority of cases end in coma and death.

The disease seems not to be contagious and no specific organism has been isolated. The first changes are noted in the bone marrow, then the blood stream, followed by the clinical onset with characteristic ulceration. The blood picture is characterized by the absence of polymorphonuclears, myelocytes, eosinophils and basophils. The lymphocytes of small mature type are reduced in number to from two thousand to two hundred. The red cells and hemoglobin are lowered slightly. The platelets and the coagulation time remain normal. The bone marrow, which seems to be the primary seat of pathology, is physiologically paralyzed.

In the line of treatment, transfusion and irradiation have produced no results. Intravenous medication has been worthless. In some recent cases considerable success has been met with by the use of liver extract—eight to twelve tubes daily—and the local use of sodium perborate as a gargle and swab. The ulcers were further swabbed with an eight per cent solution of methyl violet in glycerin.

As a result of this treatment there is a rapid drop in temperature, patient comes out of the coma, the blood picture changes and the granulocytes increase, not only proportionally, but absolutely. One treated in this way fully recovered for a year when the disease recurred, but recovery was prompt on resumption of this treatment.

Those in attendance were: Doctors J. W. Barnes, W. T. McNeil, La Berge, Van Meter, Ishikawa, Sheldon, Hudson Smythe, Hull, Gallegos, McGurk, Dozier, Hanson, Chapman, Sutton, Broadus, Rohrbacher, Vischi, Dewey R. Powell, Grace McCoskey, Thompson, Owens, Tretheway, Smithers, Doughty, Hill, and Oliver. The visitors were Doctor Goldstein and Mr. Taylor.

C. A. BROADDUS, *Secretary*.



SANTA BARBARA COUNTY

The regular meeting of the Santa Barbara County Medical Society was held on Monday evening, October 13, at the University Club, Dr. Hugh Freidell, the president, presiding.

The meeting was preceded by a banquet given by Dr. W. D. Sansum to the members of the society in honor of Dr. J. B. Kollip from McGill University, Montreal.

This was one of the most enjoyable and entertaining meetings ever held by the Santa Barbara County Society, and in appreciation of Doctor Sansum's courtesy, the attendance was the largest of any meeting for several years.

At the conclusion of the dinner the society went into executive session and the minutes of the previous meeting were read and approved.

Dr. W. H. Johnston's application for membership was referred to the board of censors.

Doctor Means reported for the board of censors regarding the syndicated articles in the morning press as follows:

"Inasmuch as many other county medical societies are availing themselves of this publicity and it has been endorsed by the American Medical Association, and while not endorsed specifically by the California Medical Association, still there have been no strenuous objections, and as long as it was brought up in the county society and this committee was appointed with power to act, they feel it should be left up to the individual members whether or not they subscribe a certain definite weekly amount to pay for the cost of the articles.

It was moved, seconded and carried, that the report be adopted.

Doctor Main moved, seconded by Doctor Ullmann, that a public relationship committee of the Santa Barbara County Medical Society be appointed.

The president then appointed Dr. Manning chairman, with Doctors Henderson, Markthaler and W. E. Johnson, and the president ex-officio member.

Doctor Sansum then introduced Doctor Kollip, the speaker of the evening. The society then adjourned to the lounging room, where Doctor Kollip gave an extremely interesting and highly instructive discourse, illustrated by lantern slides, on "Placental Hormones."

At the conclusion, Doctor Engelbach discussed this subject briefly.

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The regular meeting of the Santa Barbara County Medical Society was held at the Bissell Auditorium of the Cottage Hospital on Monday evening, November 10, Dr. Hugh Freidell presiding.

Dr. W. H. Johnston was unanimously elected to membership.

A communication from the County Welfare Board was read requesting that the society appoint Doctors Manning and Ussher as advisory members of the board, and upon motion, duly second and carried, Doctors Manning and Ussher were so appointed.

A communication from the Visiting Nurses' Association requesting the appointment of a member of the medical society to have charge of the baby clinics was also read. They recommended the appointment of Doctor Lamb, and upon motion, duly seconded and carried, Doctor Lamb was so appointed.

Doctor Manning, chairman of the Committee on Public Relationship, composed of Doctors Manning, Johnson, Markthaler, Freidell and O. C. Jones, gave his report. It was moved, seconded and carried, that the report be adopted.

Doctor Markthaler, who was elected secretary of this committee, then gave a report of the committee's first meeting, which was ordered filed.

The president then introduced Dr. Lyell C. Kinney of San Diego, president of the California Medical Association, who gave a brief address on "Public Relations," and particularly stressed the fact that the medical profession should be the leaders instead of the followers in all of the economic problems relating to medicine; that the problem is ours and, if we do not desire a lay control, medical societies must solve these problems.

The president then introduced Dr. Gayle G. Moseley of Redlands, councilor for the third district, which includes Santa Barbara County. Doctor Moseley explained briefly the Coffey-Humber difficulty and then discussed at length clinics and hospitals.

Both speakers were extremely interesting, as they dealt with paramount medical problems of today.

Dr. W. E. Johnson gave a very interesting paper on "Hysterosalpingography," and showed lantern slides. This was discussed by Dr. Lawrence Eder.

Dr. John Van Paing then gave a very interesting paper on "Malarial Therapy in Neurosyphilis," with a report of a series of his cases. This was discussed by Doctors Ullmann, Ussher, Brush, and Hamilton.

The president then reopened the business meeting and the question of a dispensary at Santa Maria was brought up. It was moved by Doctor Bakewell, seconded and carried, that the Public Relationship Committee investigate and devise ways and means and report back to the society.

The president appointed the following as a Legislative Committee: Dr. H. J. Ullmann (chairman), Dr. P. C. Means, and Dr. M. Thorner.

The addresses of Doctors Kinney and Moseley were then discussed by Doctors Ullmann, Means, and Hamilton.

WILLIAM H. EATON, *Secretary*.



VENTURA COUNTY

The October meeting of the Ventura County Medical Society was held Tuesday, October 21, at 8 p. m., at the clinic building of the County Hospital.

Dr. D. G. Clark opened the meeting. Members present were: Doctors R. M. Jones, Wright, Coffey, Felberbaum, D. G. Clark, Shore, Bianchi, Bardill, Smolt, W. S. Clark, Hendricks, and Homer. Guests were: Dr. Eva Shively of Ventura, Doctors Miller and Rhymes of Santa Paula, and Doctors George Piness and Hyman Miller of Los Angeles.

Doctor Piness addressed the society upon the etiology and diagnosis of allergic respiratory disease. Dr. Hyman Miller then took up the treatment of the same malady and presented some very impressive charts dealing with the geographic distribution and immunologic characteristics of the various plant pollens.

CHARLES A. SMOLT, *Secretary*.

CHANGES IN MEMBERSHIP

New Members—October

Los Angeles County—

Leo Joel Adelstein	Howard Wilson Bosworth
Howard Clayton Anderson	Lambert C. Brewer
Nelson Paul Anderson	William Browne Carr
William Nance Anderson	Willard Thomas Conley
Harold Lewis Bollig	Chester Elmo Cornell

Wymond Walter Eckhardt	George Mangill Olson
Albert Sidney Gough	Sammel E. Pasette
Edward Lee Loughlin	Maurice H. Rosenfeld
Henry Lund	Allan Ross
Robert Paul MacDonald	Noel F. Shambaugh
Thomas D. Mansfield	Leigh Edward Sloan
John Foley Martin	Walter Leslie Stevens
Charles H. McCallister	Reuben T. Swenson
Johannes M. Nielsen	Gilbert Bernard Tepper

Marin County—Joseph Orey Hawkins.

San Diego County—Raymond Confer Hall, George Dolphus Huff.

San Francisco County—Selling Brill, Edward John Buckley, Maurice Leopold Lubin, Joseph Minton Meherin, William Charles Munly.

Santa Clara County—Marshall I. Mason.

New Members—November

Alameda County—Emil G. Beck, Donald V. Burke, Ray Homer Fisher, Wendell H. Humphrey, Martin J. Lacey.

Sacramento County—Lloyd C. Austin.

San Francisco County—Neil P. Donnelley, John Elias Skaff, William P. Willard.

Resignations—November

M. B. Fractman, from San Francisco County.
William J. Hawkins, from San Francisco County.
Delmer L. Davis, from Los Angeles County.

Transferred—October

Russel V. Lee, from San Francisco to Santa Clara County.

W. Barclay Stephens, from San Francisco to Alameda County.

Reinhard V. Looser, from San Joaquin to Los Angeles County.

Henry M. Gay, from Santa Clara to Los Angeles County.

Cordes Ankele, from Siskiyou to Sacramento County.

Blake C. Wilbur, from San Francisco to Santa Clara County.

Julius Goldsand, from San Francisco to Humboldt County.

Samuel V. Dragoo, from Contra Costa to Fresno County.

D. V. Wiebe, from San Joaquin to Fresno County.

E. H. Reudiger, from Los Angeles to San Diego County.

W. E. Carter, from Los Angeles to San Francisco County.

Valdemar Pleth, from Los Angeles to Sonoma County.

Paul M. Hunter, from Los Angeles to Monterey County.

Clifford O. Bishop, from San Joaquin to Contra Costa County.

November

Arthur A. Archart, from Fresno to Monterey County.

Thomas F. Ayres, from Santa Clara to San Francisco County.

Edna P. Burgeson, from Orange to San Francisco County.

Samuel V. Dragoo, from Butte to Fresno County.

May L. Dutton, from Alameda to San Francisco County.

Jewel Fay, from Alameda to San Francisco County.

Mervyn F. Frandy, from Sacramento to Alameda County.

Augustus A. Gerlach, from San Mateo to Alameda County.

Hertlwyn R. Green, from San Francisco to Santa Clara County.

Marvin K. Paup, from Los Angeles to Riverside County.

Richard B. Penzotti, from Mendocino to Alameda County.

Henry L. White, from San Francisco to Tehama County.

John West Wilson, from Sacramento to San Francisco County.

Mast Wolfson, from San Mateo to Monterey County.

Deaths

Blanchard, George Lake. Died August 2, 1930, age 54 years. Graduate of Creighton University School of Medicine, Omaha, Nebraska, 1902. Licensed in California, 1919. Doctor Blanchard was a member of the Los Angeles County Medical Association, the California Medical Association, and the American Medical Association.

Crokat, Edward A. Died at La Mesa October 20, 1930, age 64 years. Graduate of the University of Manitoba Faculty of Medicine, Winnipeg, Manitoba, 1894. Licensed in California, 1911. Doctor Crokat was a member of the San Diego County Medical Society, an honorary member of the California Medical Association, and the American Medical Association.

Hunkin, Samuel J. Died at San Francisco, October 11, 1930, age 66 years. Graduate of University of California Medical School, San Francisco, 1890. Licensed in California, 1891. Doctor Hunkin was a member of the San Francisco County Medical Society, the California Medical Association, and a Fellow of the American Medical Association.

Jackson, John Alfred. Died at Los Angeles, August 26, 1930, age 62 years. Graduate of Trinity Medical College, Toronto, 1897. Licensed in California, 1901. Doctor Jackson was a member of the Los Angeles County Medical Association, the California Medical Association and the American Medical Association.

Kneedler, William L. Died September 8, 1930, age 74 years. Graduate of Jefferson Medical College of Philadelphia, Pennsylvania, 1879. Licensed in California, 1906. Doctor Kneedler was a member of the San Diego County Medical Society, the California Medical Association, and a Fellow of the American Medical Association.

Maupin, James Lawrence. Died at Fresno, October 1, 1930, age 63 years. Graduated of Missouri College of Medicine and Science, St. Louis, 1890. Licensed in California, 1890. Doctor Maupin was a member of the Fresno County Medical Society, the California Medical Association, and the American Medical Association.

Montgomery, John Andrew. Died July 31, 1930, age 41 years. Graduate of Northwestern University School of Medicine, Chicago, 1921. Licensed in California, 1921. Doctor Montgomery was a member of the Fresno County Medical Society, the California Medical Association, and the American Medical Association.

Pickett, Jesse Cameron. Died at Ross, October 6, 1930, age 51 years. Graduate of Cooper Medical College, San Francisco, 1907. Licensed in California, 1907. Doctor Pickett was a member of the San Francisco County Medical Society, the California Medical Association, and a Fellow of the American Medical Association.

Selling, Nathalie A. Died at San Francisco, October 1, 1930, age 63 years. Graduate of University of California Medical School, San Francisco, 1894. Licensed in California, 1894. Doctor Selling was a member of the San Francisco County Medical Society, the California Medical Association, and the American Medical Association.

Shields, Nicholas J. Died at San Luis Obispo October 10, 1930, age 56 years. Graduate of Baltimore Medical College, Maryland, 1898. Licensed in California, 1917. Doctor Shields was a member of the San Luis Obispo County Medical Society, the California Medical Association, and a Fellow of the American Medical Association.

Short, Charles Augustus. Died at San Jose October 26, 1930, age 40 years. Graduate of Northwestern University Medical School, Chicago, 1915. Licensed

in California, 1924. Doctor Short was a member of the Santa Clara County Medical Society, the California Medical Association, and the American Medical Association.

Wanzer, Lucy Maria Field. Died at San Francisco, October 13, 1930, age 89 years. Graduate of University of California Medical School, San Francisco, 1876. Licensed in California, 1876. Doctor Wanzer was an honorary member of the San Francisco County Medical Society, the California Medical Association, and the American Medical Association.

Zerfing, Charles. Died at Los Angeles, September 1930, age 57 years. Graduate of University of Pennsylvania School of Medicine, Philadelphia, 1895. Licensed in California, 1905. Doctor Zerfing was a member of the Los Angeles County Medical Association, the California Medical Association, and a Fellow of the American Medical Association.

OBITUARIES

Samuel J. Hunkin

1864-1930

S. J. Hunkin, the orthopedic surgeon, has passed on. He was a man of great natural talent, of enormous industry, and in his sincerity even lived up to his faults. A monumental figure, looming up among men, as if hewn from granite.

He came to California from Cornwall, a sailor before the mast. His interest in the cure of deformity was his urge to study medicine. As soon as he made up the admission requirements, he enrolled at Toland Medical School. He worked his way through college, and during one vacation fired the boat on Lake Tahoe.

Upon graduation in 1890, he became the assistant to Harry Sherman, a pioneer in orthopedics. He had a service at the Children's Hospital, where in the 90's the orthopedic work for the children of the community was centered. He was a member of the county and state societies before and after their reorganization, being a frequent contributor to their programs; and was also a member of the American Orthopedic Society.

At the University of California he taught his subject to many successive classes. His fame soon ranged the entire Pacific Coast, bringing in its wake an extensive practice. He was early associated with that group of workers best typified by that master, the late J. Henry Barbat.

At his funeral one could best sense this man's accomplishments. Though only a few knew of his demise, the great chapel at Gray's was thronged to overflowing with patients, life-long friends, and a large group of his past assistants.

Doctor Hunkin has left his imprint on orthopedics in this region for a full generation to come, due to these qualified disciples he has left to carry on.

ALFRED B. GROSSE.

♦ ♦ ♦

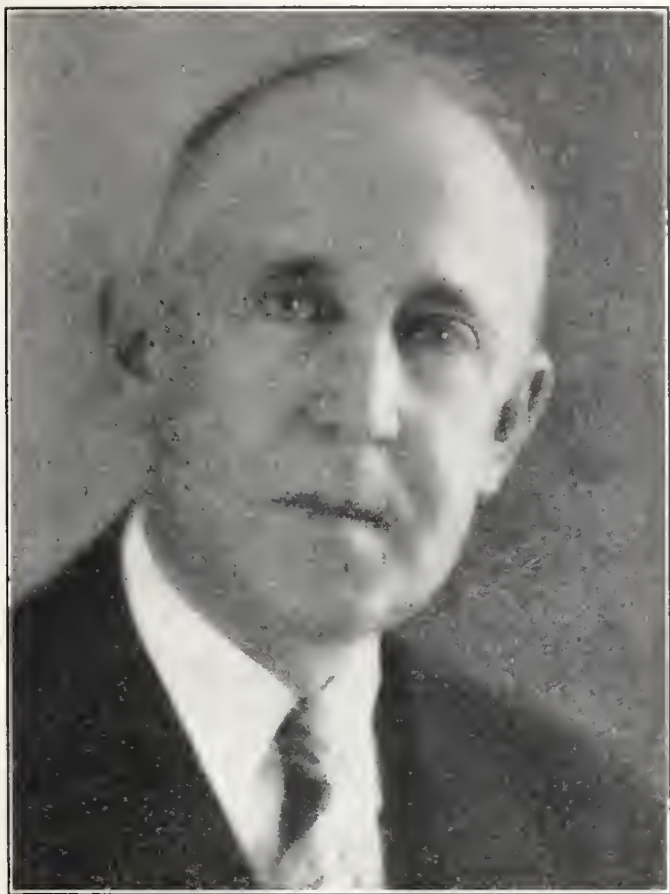
James Lawrence Maupin

1868-1930

On October 1, 1930, the medical profession lost a very valuable member and the community a splendid friend in the death of Dr. James Lawrence Maupin.

Born at Columbia, Missouri, April 19, 1868, Doctor Maupin attended college at the University of Missouri after which he moved with his parents to California. Soon after he came to Fresno he began the study of medicine and graduated from the Barnes Medical College in 1889. Immediately after he graduated from Barnes Medical College he began the practice of his profession in Fresno, being associated with his father, Dr. William T. Maupin. It was not long until his genial personality and his exceptional ability had won for him an excellent practice.

In 1900, Doctor Maupin, together with Dr. J. D. Davidson, Dr. William T. Maupin, Dr. George H. Aiken, and the undersigned, associated themselves



George L. Blanchard
1876-1930

Came a day a few months ago when a member passed from our midst, who had, for many darkened lives, increased that real sunshine which actually enters through the eyes as well as through the soul. He passed at the end of the day as quietly as a ship goes over the horizon toward the setting sun, without the slightest moaning of the bar.

Then departed a sterling character, Dr. George L. Blanchard, who had quietly accomplished much, yet with his light so hidden under a mass of service, that many members of his own society were surprised to learn that he was the founder and chief of the eye and ear clinic at the Plaza Community Center. Here he treated, I doubt not, many descendants of those who at one time had grant title to most of the land in the region of Los Angeles.

After graduating from Creighton Medical College and completing his service with the First Nebraska Regiment, he studied in the Omaha office of Dr. D. C. Bryant, at that time professor of ophthalmology in Creighton Medical College, and also in the Gifford Clinic, where he became especially friendly with the late Dr. James M. Patton as well as with Dr. John B. Potts and the two Giffords. These contacts were very helpful to him when he came here with his family thirty years ago.

In my own association with Doctor Blanchard, I was deeply impressed with the complete dedication of his life to service for others in the most quiet way. He was not one to argue and stood with equanimity among those who seem never to have an enemy or detractor, but always hosts of quiet friends, who had found that he was giving more than he was taking, in every way.

And, after all, do not most of us hope that it will some day be found that we were accomplishing more good results than had been generally suspected?

CLIFFORD B. WALKER.

together and organized the Burnett Sanitarium Company. Previous to the organization of this company Doctor Maupin had worked with Doctor Davidson, who was one of the pioneer surgeons of this valley. The two men worked together constantly for fifteen years or more doing major surgery. With this extensive experience in surgery, upon the death of Doctor Davidson in 1908 Doctor Maupin became the leading surgeon in the valley, which position he occupied until his untimely death. His genial disposition, together with his unusual skill, combined to make him a valuable as well as a very busy surgeon, and he was called upon to operate not only in Fresno, but in all of the surrounding towns.

Doctor Maupin was a great lover of outdoor sports. He was a most ideal companion on trips of this character, being always more than willing to do his share of the work. I have never been associated with anyone who had the peculiarly amiable and helpful disposition Doctor Maupin possessed. Always pleasant, he did not become excited; an oath was absolutely unknown to his lips. His habits were exemplary; it was very unusual for him to so much as smoke a cigar, and no one I have ever known would go farther or do more to help a friend. Many young doctors throughout this valley, I feel sure, will agree with me that he was a great inspiration and help to them, not only by his advice, but by recommending patients to them and helping them weather many a storm.

The Burnett Sanitarium Company, which he helped to organize in 1900 and of which he was president at the time of his death, has grown by his help from a small institution in a rented building to a modern hospital, with fire-proof building containing more than one hundred beds.

Doctor Maupin was a member of the Board of Medical Examiners of the State of California at the time of his death, and had been for several years previously. He was also a member of the American Medical Association, the California Medical Association, and the Fresno County Medical Society.

And so has passed one of God's noblest men—excellent surgeon, good doctor, good father, and good friend.

D. H. TROWBRIDGE, M. D.

THE WOMAN'S AUXILIARY OF THE CALIFORNIA MEDICAL ASSOCIATION*

Los Angeles County Auxiliary

At the first meeting since the summer vacation the members of the Woman's Auxiliary of the Los Angeles County Medical Association who filled Severance Hall in the Friday Morning Club House, Los Angeles, on October 16, were called to order at 2:30 p. m. by Mrs. James F. Percy, president. The minutes of the last meeting were read by the secretary-treasurer, Mrs. Martin G. Carter.

Mrs. Percy in her introductory talk commented on the fact that it is evident that the problems of this county are similar to and a part of the problems that affect physicians' wives throughout the nation and that the first need has been for a strong organization with a proper set of by-laws to guide us clearly.

The honor guests of the afternoon were then introduced by the president, including Mrs. David R. Robins, who has just returned from Europe, where for two years she has been president of the Woman's Auxiliary of the "American Medical Association of Vienna"; Mrs. F. C. Coulter, state program chairman and president of the Orange County Auxiliary; Mrs. Dexter R. Ball, state secretary-treasurer; Mrs. F. E. Clough, president of the San Bernardino County Auxiliary; Mrs. J. R. Gentry and Mrs. Charles Ernest, directors of health, tenth district, Parent-Teacher Association; Mrs. P. A. Quaintance, chairman Social Service Committee; and Mrs. E. M.

* As county auxiliaries to the Woman's Auxiliary of the California Medical Association are formed, the names of officers should be forwarded to the state secretary-treasurer, Mrs. Dexter R. Ball, 2419 Bonnie Brae Street, Santa Ana, and to the California Medical Association office, Room 2004, 450 Sutter Street, San Francisco. Brief reports of county auxiliary meetings will be welcomed for publication in this column.

Lazard, who announced a meeting for November 13 to consider a revision of the by-laws.

Mrs. Percy then presented the speaker, Dr. J. L. Pomeroy, Los Angeles County health officer, who gave a most informative description of the work of the county health department.

Doctor Pomeroy is one of the outstanding figures in the United States directly concerned with the problems of health. He has been so for many years, having been chosen as health commissioner by the authorities of Los Angeles County in 1915. At that time he was the only full-time health commissioner west of Ohio—showing the wisdom and foresight, and appreciation of public health, of our county authorities even at that period of our progress.

Doctor Pomeroy summarized briefly the problems of the health commissioner and his department, which are numerous and onerous. Cost of sickness, cost of living, cost of health, and the relative importance and interlocking dependency of all these things were explained with critical and helpful comments and suggestions. The speaker commented that the word "health" does not appear in the Constitution of the United States.

In the matter of the practical application of the duties of health commissioner, Doctor Pomeroy emphatically advocates the establishment of health centers. Los Angeles County is particularly blessed with these oases of hygiene and health education at the present time. Yet we have no Rockefeller Foundation, or similar institution, for helping us with our health problems as they have in some of the eastern states and communities. Yet we continue to carry on by our own resources, and have reason to believe that we are well in the van of progress by comparison with any of the other world health centers.

Doctor Pomeroy extended an invitation to all members of the Woman's Auxiliary for the day of October 21 at the East Side Health Center, a tour of inspection beginning at 10:30 with luncheon at 12, followed by talks on health center activities and an educational film "The Gift of Life."

Doctor Pomeroy was followed by Dr. R. V. Stone, director of department of laboratories, who gave a very brief but most illuminating talk on the sanitation of water protection, with film, "The Story of Water."

The tea hour in charge of Glendale members was a happy success. The table was exquisitely adorned, the pièce de résistance being a great bowl of magnificent tiger lilies. The hostesses were Mesdames R. E. Chase, O. E. Ghrist, C. Duane Miller, and J. Orville Sloan.

CORA YOUNG WILLIAMS,
Publicity Chairman.

Orange County Auxiliary

The Woman's Auxiliary of the Orange County Medical Association held its October meeting on the afternoon of the seventh at the home of Mrs. Dexter R. Ball, with Mrs. C. D. Ball co-hostess. The auxiliary was fortunate in having Mrs. James F. Percy, state president, as guest of honor. Mrs. Percy said that it was with a great deal of satisfaction and pleasure that she was submitting to us the programs for the year which Mrs. F. E. Coulter, as chairman of the State Program Committee, had worked out: one for counties with a health unit, and one for those without such an organization. She also spoke on the present status of the Sheppard-Towner bill.

Mrs. D. C. Cowles called our attention to Amendment No. 6 on the tax exemption of nonprofit hospitals and urged that we use our individual influence to secure its passage in the coming election.

Dr. E. L. Russell, assistant health officer of Orange County, gave a comprehensive and interesting talk on "Infantile Paralysis." He traced the history of the disease down to the present time, showed its tendency to travel in definite lines, and stated its tremendous cost to the individual, to society, and to the state. He outlined the progress being made in the

treatment of deformities and spoke in detail of experiments now being conducted to aid in its prevention.

The business meeting then adjourned and the members enjoyed a pleasant half-hour around the tea table.

JESSIE QUISNO RAITT, Secretary.

San Bernardino County Auxiliary

The Woman's Auxiliary of the San Bernardino County Medical Society was entertained by the doctors and wives of the State Hospital at Patton.

Members were conducted through many parts of the institution, after which a delicious dinner was served in the new cafeteria.

After dinner Doctor Webster invited the women to remain for their meeting. All preferred to do so, therefore no meeting of the auxiliary. The doctors' meeting was most interesting and instructive, so we felt we were very wise to avail ourselves of the privilege.

The Woman's Auxiliary of the San Bernardino County Medical Society met October 9 for luncheon at Café Madrid, San Bernardino.

Following the luncheon, Mrs. Clough introduced our state president, Mrs. James F. Percy of Los Angeles, who gave us a most enjoyable and profitable talk. She outlined the purpose of the auxiliary, what it has accomplished in other states; also the outline of work to be followed this year by each society of the state.

An open discussion followed and questions were answered by Mrs. Percy.

A short business meeting followed. Mrs. Clough stated that all county societies were asked to have their fiscal year end with the December meeting, and officers be elected at that time. Also the state constitution and laws were being amended and would be ready for our adoption at that time. The present officers were to continue until December. A motion was then made and seconded that we make our fiscal year to conform with the other county societies. The motion was carried.

The meeting was adjourned by motion.

Members then had the privilege of meeting Mrs. Percy informally.

ETHEL E. CURTISS, Secretary.

NEVADA STATE MEDICAL ASSOCIATION

W. A. SHAW.....	President
R. P. ROANTREE, Elko.....	President-Elect
H. W. SAWYER, Fallon.....	First Vice-President
E. E. HAMER, Carson City.....	Second Vice-President
HORACE J. BROWN.....	Secretary-Treasurer
R. P. ROANTREE, D. A. TURNER, S. K. MORRISON.....	Trustees

COMPONENT COUNTY SOCIETIES
WASHOE COUNTY

The regular monthly meeting of the Washoe County Medical Society was held at the Nevada State Building on the evening of November 11, President Hamer of Carson City presiding. No clinical cases were presented. After the usual preliminaries the president called upon Dr. J. L. Robinson, who presented a remarkable paper on "Atropin and the Eye." The purpose of this paper was that this message might reach the physician far removed from medical centers. Doctor Robinson gave the history of four cases that had come under his observation within the last ninety days, in which possibly all of these cases could have been saved had the proper medical treatment been instituted at once. Aside from the consideration of proper sterilization, which is always conceded to be in order for eye injuries, the important point developed by Doctor Robinson was the

use of the one per cent solution of atropin in the injured eye. In order to prevent iridocyclitis, atropin used sufficiently often to insure a complete dilatation of the pupil. This treatment, in Doctor Robinson's opinion, would restore sight to many eyes which, if not so treated, would become irreparably lost. Statistics on eye injuries give the alarming number of eyes lost each year in the United States, estimated between three and four hundred thousand. Most of these eyes could have been saved if proper treatment had been given early.

Doctor Robinson brought out especially the type of injury known as the "agricultural eye." It seems that sawdust, wooden splinters, and trauma to the eyeball by means of brush striking the eye, produces a very unusual type of inflammation which, unless speedily relieved, is apt to become chronic with very serious results.

Doctor Fuller presented a most splendid paper on the "Pathological Anatomy of the Ear," reciting briefly the most common disease, and gave many excellent points with reference to the proper treatment of the ear. Especially did Doctor Fuller dwell upon the importance of early incision of the ear drum when pain began to manifest itself in the region of the middle ear. An early paracentesis in many cases, by carrying out natural principles of drainage, would cut short a beginning inflammation in that region which would prevent such serious problems as deafness later on, or possibly chronic discharge of the ear. Doctor Fuller likewise dwelt with special emphasis upon the infected adenoids as a means of causing not only future sinus trouble, but also of carrying the infection directly into the eustachian tube which would give trouble in later life, producing deafness and possibly mastoid infection.

These papers were discussed by other specialists present. Likewise by many of the practicing physicians. It was a delightful treat to the society because the treasure box of a rather rare and special type of medical knowledge was opened, much to the interest and enlightenment to the average practitioner.

THOMAS W. BATH, *Secretary*.

UTAH STATE MEDICAL ASSOCIATION

WILLIAM L. RICH, Salt Lake City.....President
R. A. PEARCE, Brigham City.....President-Elect
M. M. CRITCHLOW, Salt Lake City.....Secretary
J. U. GIESY, 701 Medical Arts Building,
Salt Lake City.....Associate Editor for Utah

COMPONENT COUNTY SOCIETIES
SALT LAKE COUNTY

The dinner meeting of the Salt Lake County Medical Society was held at the Newhouse Hotel on Monday evening, October 20, in honor of Professor William J. Kerr of the University of California.

The meeting was called to order at 8:15 o'clock by President M. M. Nielson, who introduced the speaker of the evening. Forty members were present.

The title of Doctor Kerr's paper was "The Use of Quinidin in the Treatment of Cardiac Irregularities."

J. E. Felts was unanimously elected a member of the society.

* * *

The regular meeting of the Salt Lake County Medical Society was held at the L. D. S. Hospital on Monday, October 27.

The meeting was called to order by Vice-president F. M. McHugh at 8:05 p. m. Thirty-eight members and six visitors were present.

The following clinical program was presented by members of the hospital.

Megalocolon—Surgical Removal, by R. T. Richards. Discussion by J. P. Kerby and E. P. Oldham.

Carcinoma of the Antrum of Highmore, by L. R. Cowan. Discussion by Q. B. Coray.

Acute Atrophy of the Liver, by J. E. Trowbridge.

Rupture of the Uterus, by R. W. Owens.

Skull Fracture with an Unusual Paralysis, by R. Groesbeck.

The following applicants were elected to membership of the society: H. S. Stevenson and Charles C. Stevenson.

M. M. Critchlow, reporting for the Committee on Revision of the Constitution and By-laws, recommended that an additional paragraph be added to Article 3 of the constitution, which shall read:

"Any scientist holding a doctor's degree is eligible for associate membership provided he resides in Salt Lake City. Such associate member shall pay the regular dues, but shall not be entitled to vote or to hold office. He shall be elected to membership in the same manner in which a regular member is elected."

W. F. Beer moved that this report be accepted and that the usual method be adopted in the revision of the Constitution and By-laws. Motion seconded and carried.

The meeting adjourned at 9:45 o'clock, after which refreshments were served.

BARNET E. BONAR, *Secretary*.

Incomes of Physicians in Wisconsin.—The August number of the *Wisconsin Medical Journal* prints a letter from Dr. S. D. Beebe of Sparta, Wisconsin, reporting the incomes of physicians of seven counties of the seventh councilor district of which he is president. He says that he obtained the figures from the income tax department and that they, therefore, represent net incomes. Doctor Beebe writes as follows:

"Two years ago, while discussing a question of medical economics, one of the past presidents of our state medical society asked me this pertinent question: 'Where is the country practitioner who is not taking in \$750 a month or probably two or three times that amount?' That question was asked in good faith and my answer to it, which I herewith submit, is in equally good faith.

"As councilor for this seventh district I have recently completed a survey with relation to the annual net income of all the physicians resident and practicing in this district at the date of the last income tax report.

"Average net income of physicians of:

Vernon County	\$2,980
Buffalo County	2,892
Jackson County.....	3,660
Trempealeau County	3,717
Juneau County	4,238
Monroe County.....	6,086
La Crosse County.....	8,625

Average net income for the district, \$4899. Number of physicians in district, 116.

Number of physicians with income over \$10,000, thirteen. Average income of these thirteen, \$20,280.

Number of physicians with net incomes of less than \$10,000, 103. Average net income of these 103, \$4379.

Thirty-one physicians of the 116 in the district report a net income of less than \$3000.

Forty-four have an income of less than \$3500.

"Time and space will not permit a comprehensive discussion of these figures and their vital implications. I believe, however, the brethren would be fully as interested in them as in the labored discussion of the 'The canary-yellow lipochrome discoloration of the lasolabial folds.'

"An open-minded study of the figures I have presented will convince almost anyone that those physicians, who are able to make vital hospital contacts, usually have a fair income. The rest, or most of the rest, are just out of luck, that's all."—*New York State Journal of Medicine*, October 1930.

MISCELLANY

Items for the News column must be furnished by the twentieth of the preceding month. Under this department are grouped: News; Medical Economics; Correspondence; Department of Public Health; California Board of Medical Examiners; and Twenty-five Years Ago. For Book Reviews, see index on the front cover, under Miscellany.

NEWS

The American Board of Otolaryngology.—An examination was held in Chicago, October 27, 1930, during the session of the American Academy of Ophthalmology and Otolaryngology.

One hundred and eleven candidates were examined, of which eighteen were either conditioned or failed.

The board will hold an examination in Los Angeles in the spring, preceding the meeting of the Pacific Coast Oto-Ophthalmological Society, and in Philadelphia at the time of the meeting of the American Medical Association. An examination will also be given in the fall at Indianapolis, preceding the meeting of the American Academy of Ophthalmology and Otolaryngology, which will be held at French Lick Springs.

Prospective applicants for certificate should address the secretary, Dr. W. P. Wherry, 1500 Medical Arts Building, Omaha, Nebraska, for proper application blanks.

The eighty-third semiannual meeting of the Southern California Medical Association was held at the Hotel Virginia, Long Beach, October 31 and November 1 last.

The sessions were well attended, and the meeting was a very successful one.

The following officers were elected for the ensuing year: Fred B. Clarke of Long Beach, president; William H. Barrow of San Diego, first vice-president; Philip H. Stephens of Los Angeles, second vice-president; Carl R. Howson of Los Angeles, secretary-treasurer.

The next meeting will be held at the Hotel Coronado in April, 1931.

Meeting of the California Tuberculosis Association. A two-day program has been arranged for the meeting of the California Tuberculosis Association to be held at the Biltmore Hotel, Los Angeles, Friday and Saturday, January 9 and 10.

The Sociological Section will have three half-day sessions on program building, child care, and rehabilitation.

The Medical Section will have three half-day sessions on thoracic surgery, demonstration of chest plates, and a symposium on tuberculosis in children.

Many of the leading authorities of California have consented to present papers and lead in the discussion.

The following program has been announced: On Friday morning The Results of Ten Years in Pulmonary Tuberculosis Surgery will be presented by Leo Eloesser; Atelectasis, by Harold Brunn; Chest Surgery in Europe and America, by F. S. Dolley; and Surgery in Pulmonary Tuberculosis, by W. H. Thearle.

On Friday afternoon Dr. Joseph E. Pottenger will speak on "Laboratory Technique." Presentation of interesting films by visiting members. Completed program to be announced later. Doctors are requested to bring interesting x-ray films.

The Saturday morning session, a symposium on tuberculosis in children will be discussed in its various aspects by Ernst Wolff, William H. Sargent, Rolla G. Karshner, Harold Trimble, Charles Ianne, and Henry Dietrich.

Diagnostic Clinic.—The Livermore Sanitarium, in connection with its diagnostic clinic, is establishing a department for the examination of children. This department will be devoted to children in need of guidance because of some nervous behavior or mental disorder. A special effort will be made to examine children of psychotic parents who may have, as the result of inheritance or environmental influences, a predisposition to mental disease.

The clinic is free to all cases referred by public health nurses or those who present evidence of their inability to pay the regular fee.

The clinic will be held each Wednesday afternoon or patients will be seen by appointment.

Grants to Faculty Members, School of Medicine, University of Southern California.—Three grants have been made to two faculty members of the School of Medicine of the University of Southern California, Dr. Harry J. Deuel and Dr. Clinton H. Thienes, by national scientific organizations, according to announcement of Dr. William D. Cutter, dean of the Southern California Medical School.

Doctor Deuel, professor of biochemistry, has been honored by grants of \$300 each from the National Research Council and from the Committee on Scientific Research of the American Medical Association for the purpose of research in the determination of the antiketogenic value of different carbohydrates. In this experiment Professor Deuel has accepted the co-operation of a number of individuals who voluntarily have gone on a uniformly protein-fat diet of such things as meat, eggs, butter, and salad dressing, with carbohydrates excluded. On such a diet, with carbohydrates absent, acidosis will develop in the subjects, he states. Doctor Deuel will then test the efficiency of the ordinary carbohydrates, such as sugars, to decrease the acid formation.

Doctor Thienes, associate professor of pharmacology at Southern California, also received a grant from the American Medical Association, this one of \$500 for research in "The Relationship Between Mesenteric Plexus and Ganglia and the Mesenteric Nerves."

Psychiatry Fellowships.—The National Committee for Mental Hygiene announces the availability to properly qualified candidates of fellowships for training in extramural psychiatry. These fellowships are designed to provide special training for physicians who have had previous hospital training in psychiatry but who wish to prepare themselves for extramural work in the fields of child guidance, delinquency, education, dependency, and industry.

Fellowships are open to physicians who are under thirty-five years of age, graduates of Class A medical schools, and who have had at least one year of training in a hospital for mental disease maintaining satisfactory standards of clinical work and instruction. A longer period of hospital training is desirable.

Applicants able to meet these requirements will not be required to take competitive written or oral examinations. Selections will be made on the basis of length and type of previous training in formal psychiatry; on general fitness for the work contemplated; and, in most cases, on the results of a personal interview.

These fellowships cover a period of training approximately one year in length.

During this training period trainees usually are assigned for three to four months' periods at such places as the Boston Psychopathic Hospital; Judge Baker Foundation, Boston; Institute for Juvenile Research, Chicago; and other places of a similar nature, as well as to various child-guidance clinics located in Cleveland, Philadelphia, and other cities. Assignments to these training centers are not definite, however, and assignment to any given place will depend upon the availability of instruction at such place, as well as the special needs of the individual trainee. Assignments are not made for more than three months in advance, and adherence for the year's training period to a fixed program in advance is impossible.

These fellowships carry stipends at the rate of \$2000 to \$2500 for the twelve months' period.

Applications need not be filed within stated periods, but will be received at any time. In the case of successful applicants, arrangements will be made to begin work whenever mutually convenient to the applicant and to the director of the training center to which the applicant is first assigned.

Applications or inquiries for further information should be sent to Dr. Frankwood E. Williams, Medical Director, National Committee for Mental Hygiene, 370 Seventh Avenue, New York, N. Y.

Dr. Sven Lokrantz Elected President of the American Association of School Physicians.—At the recent annual session of the American Association of School Physicians held at Fort Worth, Texas, Dr. Sven Lokrantz, whose work as medical director of the Los Angeles City Schools has attracted much attention, was elected president of the association. A few months have passed since Doctor Lokrantz was knighted by the King of Sweden in recognition of the service which he had rendered in the health conservation of school children.

MUCH IN LITTLE *

The science of medicine and the art of medicine seldom pick the same man as their favorite.

The hardest operation for any surgeon is to "cut out" unnecessary surgical procedures.

The medical herd is easier stampeded than any other of equal intelligence.

The paragon of human wisdom—a young specialist at his first consultation.

What difference is there in technic and ethics between the stabbing in the dark of the Italian Mafia and the anonymous blackballing in "exclusive medical societies"?

Professional assets in medical practice: gray hairs, gold-rimmed spectacles; also balanced clinical judgment and clinical experience.

A diagnosis which leans too strongly on the crutch of laboratory reports is bound to be a lame one.

It used to be the practice of medicine. Now it is the game of medicine.

* Members of the California, Nevada, and Utah Medical Associations are invited to contribute to this column of aphorisms, which will appear from time to time in *California and Western Medicine*, as sufficient copy accumulates. The aphorisms in this issue were sent in by Moses Scholtz, M. D., Los Angeles.

IN LIGHTER (?) VEIN

The following were the questions and answers of one of the applicants, who was applying for a license as a midwife, in an anatomy and physiology examination which was held under the auspices of the California Board of Medical Examiners at San Francisco on July 8, 1930. In justice to the applicant it is only fair to state that it was necessary to translate English questions into Italian, and in turn to translate the Italian answers into English. The questions and answers were as follows:

Q. What is the function of the skin?

A. The function of the skin is to help toward the development and the health of the body.

Q. Describe the secretion of milk. What conditions may modify this secretion?

A. The secretion of milk is very necessary for the nourishment of the new-born. It is composed of butter, salt, and sugar.

Q. What is bile? Where formed and what action has it?

A. Bile is secreted by the liver. Its action is to help the proper function in the elements of digestion.

Q. What is the lymphatic system? What function have lymph glands?

A. Lymph glands are the glands which help toward the functioning.

Q. Name the bones of the skull. What is the anterior fontanelle?

A. The bones of the skull are the two parietal, superior and posterior, the small and large fontanelle.

Q. What changes occur in the heart immediately after the birth of the child?

A. After the birth of the child the heart immediately takes on the respiration.

Q. Describe the rectum.

A. The rectum is the large intestine. It helps in the evacuation of material of the body as far as the anus.

Q. What is menstruation? What changes occur in the uterus during this period?

A. The contractions are the pains of the uterus during labor. During this period the uterus works for the expulsion of the fetus.

Q. What is the spinal cord?

A. The vertebral column is formed of vertebrae and helps to support the trunk of the human body.

Q. Describe normal blood.

A. Normal blood is of a bright red.

Q. What makes blood clot?

A. The blood clot is produced immediately after labor and after miscarriages.

Q. Name the muscles forming the anterior abdominal wall?

A. The muscles which form the anterior abdominal wall are the epigastric and abdominal regions.

SOME OPTOMETRIC TRENDS

The editorial pages of this number of *CALIFORNIA AND WESTERN MEDICINE* comment on a recent optometric clinic which was held at Los Angeles. It was stated (see p. 896) that some side-lights on the matters there discussed would be printed in this column. The following items are taken from *The Optometric Weekly* of November 13, 1930, and are printed for such information they may give to readers of *CALIFORNIA AND WESTERN MEDICINE* who are interested in these matters.

* * *

From an article captioned "Prepare for the National Educational Program":

"The two things I have in mind are: First, to see you, as an optometrist, personally rise to a place where your financial standing and worth to your community will be equal or above that of any other citizen in it. Second, to see the profession of optometry recognized by and given a place along with the other leading professions.

"Within four years we can reach this goal, if you and all of us will do what is asked by the leader in the two movements that are now being launched to bring this about. Figuratively speaking, as I see it, from the financial side of the four-year period, if you are now walking, you will then be driving a Ford, and if you drive a Ford you will then be driving a Cadillac, and have it paid for; and why not? for what profession is contributing more than ours to the happiness and increased efficiency of the world? . . .

"There are two distinct plans, one known as the Graduate Clinic Foundation for the advancement of professional optometry. This plan is being given by Dr. A. M. Skeffington, and sponsored by the different state and local societies over the United States and Canada. . . .

"A contract was made with a firm, who specializes in this kind of work, to raise six million dollars to be spent over a period of four years to advertise optometry. This is the biggest publicity campaign ever undertaken by any profession, and is bound to increase very materially the practice of every optometrist in the United States who is eligible to take advantage of this opportunity when presented to him. . . ."

* * *

From an article captioned "Looking Them Over":

"The men and women assembled (in the city of Chicago at the meeting of the American Academy of Ophthalmology and Otolaryngology) represented the cream of the profession from the states, as well as abroad, all intensively interested in whatever advancement had been made in technique and in the new methods of treating pathological eye cases. Refraction was seemingly forgotten; and that should be pleasing to optometry. The ophthalmologists are being drawn into a new field which, we believe, is termed "biopathology."

"Some of the most eminent ophthalmologists in the world were on the program and those who lectured, in spite of the positions they held in their particular field or community, felt honored in being placed on the program. Paying a lecturer at such a congress is a thing unheard of. Physicians take that oath and are glad to pass out whatever they discover or develop. Another important item is that the men who do things in medicine or surgery are more interested in effecting relief, cure, or reconstruction than in the financial return of any particular case. That is true among the bigger men, with the fact of their being wealthy not entering the case at all. . . .

"Have we men of that type in optometry? We, personally, should like to hear of them. The "big" men we have are practically those who come before us and lecture; but let us see how they measure up. Do these men come before us at our conventions or other gatherings eager for the honor of being placed on the program, and equally as eager to teach us a new technique to advance the profession, and to assist our patients toward better vision? They do not! They lecture at so much, and expenses, and on top of that, in many cases, get up some contraption which in many cases eventually serves as a show piece in the refracting rooms of those who buy it. . . ."

* * *

From announcements in the "Department of Public Information":

"Doctor Skeffington explained clearly that he was not bringing to the groups theories, but only tried and proven facts; that every case was a law unto itself, but that there were certain very definite pathways to follow in each and every case. Also that these pathways sometimes lead to other byways, but we can rest assured that we are on the right road and will surely arrive in time to a correct and accurate diagnosis of the problem. After all, a correct diagnosis is the biggest problem confronting the optometric practitioner today. This is bringing to fulfillment his prediction that 'to the optometrist shall be allocated all ocular diagnosis' whether it be refraction, neurological or pathological."

From a book review:

"The Principles and Practice of Ocular Physical Therapy for Optometrists. Written for practitioners and students. By Jack I. Kurtz, B. Sc., A. O., F. A. A. O., etc.

"It is an exceedingly sober, conservative presentation of the scientific and working principles of the physical modalities, their usefulness and limitations in the treatment of ocular conditions, and the most approved methods of technique. . . . It is no part of this reviewer's business to determine whether or not the optometrist should undertake the treatment of ocular disorders by physical therapy. But for those who believe that they should and who contemplate undertaking it, Kurtz's book will certainly furnish a safe and sound, as well as a most helpful, handbook of practice."

A PUBLIC HEALTH CAMPAIGN*

For many years the medical profession has recognized the desirability of acquainting the public with various facts regarding health, sanitation, hygiene, and other subjects closely allied. Many plans have been tried from time to time with indifferent success, the failure being due to the almost unsurmountable difficulties of properly contacting the public.

Recently there has been a survival of public interest in health matters. The daily newspapers are devoting considerable space to syndicated articles by medical men, some good, some poor, but all widely read. In nationally circulated magazines have appeared many articles, some critical, some friendly. This amount of material, however, indicates that the public wants to know and is demanding that the doctor reverse his old methods of secrecy and come frankly out in the open.

In March of this year the officers of the Long Beach Tuberculosis Association asked for a joint meeting with the Harbor Branch Medical Society. At this time the Tuberculosis Association asked for aid in defining some method whereby it could put into every home in the city of Long Beach some accurate information regarding tuberculosis.

With this idea in mind I proposed a plan which was followed out during the month of April, with what we believe to have been gratifying results.

This plan was as follows:

First: The appointing of two committees, one composed of medical men; their duties being:

(a) To prepare and have printed four bulletins, one for each week, for a period of four weeks. It was found that material furnished by the National Tuberculosis Association would perhaps be quite acceptable, and some of its bulletins were used in their entirety and the others changed to suit our needs.

(b) The outlining and having in readiness speeches to give before the Parent-Teacher Associations, service clubs, women's city clubs, and various trade-unions. The arrangements for these various talks were made by the secretary of the Tuberculosis Association.

Second: A committee appointed from the Medical and Tuberculosis Associations to arrange with druggists, department stores, and other retail agencies for the wrapping in all packages of these various bulletins, furnished them once a week.

This committee also had charge of publicity and arranged to have several articles appear in the two

* The attention of readers is directed to this report by Dr. Fred B. Clarke of Long Beach, which is a digest of a report made at the Del Monte annual session of the California Medical Association. Reference to the work which has been done in Long Beach under Doctor Clarke's chairmanship is made in the paper by President Kinney, which is printed in this issue on page 852.

leading newspapers of the town. Each talk before the various clubs was given publicity by the publicity chairman of the various organizations before which the talks were made. The *Labor News* reported the talk given before the local labor union. The Long Beach Shopping News, which is distributed to every home in Long Beach, very kindly arranged to insert in a very prominent place in their publication the following bulletin:

PROTECT THEM FROM TUBERCULOSIS!

How We Can Help Prevent Tuberculosis:

The most essential thing in the prevention of this widespread disease is knowledge on the part of the people as to its causes, development and spread. Another important factor is that every child who may or may not have tuberculosis of the glands be shielded from close contact with active tuberculosis. If there should be an adult with active tuberculosis in the family they should either enter a sanatorium or great care used in the home. For example, kissing is absolutely forbidden between children and adults who have pulmonary tuberculosis. Dishes should be boiled or scalded, or even better, the patient should have individual dishes which can be washed and scalded separately. The patient should cover his mouth when he coughs. Sputum must be destroyed, preferably by burning. The patient should sleep alone. In other words, close contact of the child with the tuberculous adult must be scrupulously avoided.

Care of the Undernourished Child:

Another important item in the child's life which helps to prevent the development of such a disease as tuberculosis is the proper regulation of his physical and mental life; a proper relationship between rest and exercise, regular habits, and a well-balanced diet. His school work should not be too burdensome. Chronic fatigue above all else must be avoided, strenuous exercise and athletics should be carefully supervised. Just as rest is the secret of the successful treatment of tuberculosis, so also is it the most important preventive of that disease.

Further, it is imperative that everything possible be done to build up the child's general health. Defective teeth and infected tonsils must be corrected. Health habits must be cultivated. Good food, sunshine and fresh air in abundance are essential.

Finally, the child should be taught to adjust his life so that he will not overstrain. Face frankly the fact that an unwelcome visitor has come to threaten the health of the child, yet by a little care the visitor may be kept in chains and need not shorten life or dim its beauty and preciousness. Children with childhood tuberculosis, if properly supervised during the body-building period, generally gain strength and overcome the threat of tuberculosis.

The Preventorium Can Help:

Preventorium treatment can be carried out at home, though it is difficult. Some communities have established special schools for children threatened with tuberculosis. Such schools, generally called preventoria, aim to help parents carry out a health-building program. In Long Beach there is the Rock Haven Preventorium, where such care and health training may be received.

This bulletin issued by the Medical Association and the Long Beach Tuberculosis Association, coöperating with the national movement for the prevention of tuberculosis.

Our speakers were able to appear before the majority of the Parent-Teacher Associations during the month and they were very well received.

Literature was distributed as follows: 10,000 circulars with health message; 100 colored posters; 40,000 bulletins on tuberculosis prepared by the local medical association; 13,150 pamphlets furnished by the state and the national associations.

Literature, which had to do with "Health and Tuberculosis," was distributed by the director of physical education of the public schools to the principals of the elementary schools and the physical education teachers.

The entire cost, other than the labor involved, was \$57, which we consider to be a very small amount for as wide a distribution of literature as we had, and goes to show what can be accomplished when the funds are limited.

We learned a great many things during the development of this publicity campaign and now feel that during the coming year we can endeavor to bring to the public other messages pertaining to their health.

(Signed) FRED B. CLARKE,
*Chairman, Committee on Health and
Public Instruction.*

CALIFORNIA DEPARTMENT OF PROFESSIONAL STANDARDS

Two years ago considerable editorial space was given in *CALIFORNIA AND WESTERN MEDICINE* in discussing problems which were apt to arise in the newly organized "Department of Professional and Vocational Standards" of the State of California.

That department is now one of the several major divisions of the state government. Its director is Mr. James F. Collins and, in accordance with the law, he submits from time to time to the Governor's Council (which consists of the directors of these various major state departments) a report on the activities of his department.

As physicians and as citizens it is desirable that members of the California Medical Association should know somewhat of the particular division which includes the Board of Medical Examiners and other healing art and associated professions.

The report of October 29, 1930, as submitted by Director Collins, is here printed, because of the belief of the editor of *CALIFORNIA AND WESTERN MEDICINE* that the statistics and comments therein contained will be of interest to many readers of this Journal.

The Department of Professional and Vocational Standards is composed of three divisions, but no excerpts will be printed from Division 3. The Board of Medical Examiners is placed by law in Division No. 1, which includes only the boards for medicine, dentistry, and pharmacy.

In Division No. 2 are two boards, which while classed thereunder are really independent of the department, since they exist with independent powers, as a result of initiative petitions and successful referendum votes of the people of California. The figures for some of the professions cannot be other than somewhat startling to many physicians.

The October 29, 1930, report to the Council of the Governor of California, and is as follows:

DIVISION NO. 1

BOARD OF MEDICAL EXAMINERS

A total of seventy-nine licenses were issued by the Board of Medical Examiners during September, bringing the total number of licentiates operating under the jurisdiction of this board to 11,605. Removal of the names of thirteen deceased licentiates from the roster at the close of the month, however, reduced the final total to 11,592, as of September 30.

Investigations conducted by agents of the board numbered forty-five. Prosecutions in the courts were conducted in eleven cases. Convictions were obtained in three. Fines assessed by the courts amounted to \$100. No licenses were suspended or revoked.

Licensed physicians and surgeons, as well as unlicensed persons, were the subjects of the investigations of the board's agents during the month. Thirty such investigations were pending completion at the close of the period covered herein.

BOARD OF DENTAL EXAMINERS

Restoration of licenses to four dentists who had become delinquent and who were required to pay the delinquency fee of \$25 each brought the total of

licentiates operating under this board's supervision to 5936. This total was reduced to 5933 by the removal of the names of three deceased licentiates.

Numerous investigations were conducted by the board's agents during September and one prosecution was conducted in the courts, the latter resulting in a conviction. No licenses were suspended or canceled.

BOARD OF PHARMACY

There is no change noted in the September report in the number of licentiates operating under this board's direction, as compared with the report for the preceding month. Licentiates numbered 8024 and assistants totaled 1701, a total of 9725 persons who, in the pursuit of their profession, come under the supervision of the Board of Pharmacy. A total of 1012 investigations and inspections were conducted by agents of the board in September with one investigation pending completion at the close of that month.

Out of a total of forty-nine persons prosecuted in the courts, convictions, resulting in fines or suspended sentences were obtained by the board's representatives in forty-five cases. Fines assessed amounted to \$515.

These prosecutions and convictions were the result of a campaign conducted in southern California against unlicensed persons employed in drug stores and other establishments who undertake to sell poisons and other commodities to customers in violation of the State Poison Law and the Pharmacy Law. Offenders were for the most part persons employed in some department of the establishment not directly connected with the drug department but who undertook to assume the duties on occasion of licensed pharmacists or assistants.

The above condition had become acute in southern California, and particularly in and about Los Angeles, according to the report of Secretary Louis Zeh.

DIVISION NO. 2

BOARD OF BARBER EXAMINERS

Issuance of 443 licenses by the Board of Barber Examiners in September brought the total number of licentiates operating under that board's jurisdiction up to 17,286, as of September 30.

Investigations and inspections conducted by the board's investigators during that period numbered 3589. Prosecutions were conducted in court in three cases, but convictions obtained numbered four. The fourth conviction represented a prosecution begun in the preceding month. Fines assessed amounted to \$50.

Complaints involving licentiates resulted in the cancellation of four licenses during the period covered herein.

BOARD OF COSMETOLOGY

Eighty-two licenses were issued by the Board of Cosmetology in September, bringing the number of regular licentiates up to 17,847. In addition, temporary licenses were issued to 548 applicants. Nine junior operators were registered.

Investigations and inspections conducted by board representatives totaled 293. No prosecutions were conducted nor were any licenses canceled or suspended.

BOARD OF EMBALMERS AND FUNERAL DIRECTORS

Report of the secretary of the Board of Embalmers and Funeral Directors for September shows a total of 2008 licentiates were operating under the board's supervision during that period, divided as follows: Embalmers, 1465; funeral directors, 566. An increase of twenty-four embalmers and a decrease of one on the funeral directors' roster is shown. One license was ordered canceled.

The board's campaign of education, launched with the idea of better acquainting the people of California with the aims and purposes of the law, as well as with a view to familiarizing them with the methods of modern embalming and funeral directing, was considerably furthered through its excellent exhibit at the State Fair. Results of this exhibit are shown in a report made to the board by H. G. Nations of Los Angeles, who is prominently identified with the pro-

fession in California and who delivered lectures on embalming practice to thousands of visitors at the fair.

"Allow me to say that you have inaugurated a program that is far-reaching; one that is greatly appreciated by the people and, if carried on as it should be, will result in great good for the profession." . . . "We as a profession have nothing to cover up and if we allow the public to know what we are doing and why we are doing it, the occasion for some of the questionable methods and advertising campaigns now in vogue will become things of the past," Mr. Nations' report states.

A careful check of the number of persons who visited the exhibit booth of the Board of Embalmers and Funeral Directors, the report states, revealed that the lectures were delivered to between 9000 and 10,000 visitors during the nine days of the fair.

In his lecture, emphasis was laid upon the fact that the work of the embalmer is in direct coöperation and on the same plane with the work of the State Department of Health and that embalmers, as a profession, constitute one of the strong arms of that important public department.

A countless number of questions regarding the profession, methods of handling dead persons, provisions of the state law, how to select caskets and other funeral equipment, and others too numerous to mention were asked by visitors and revealed the deep interest of the public in this profession which touches so closely the lives of all.

The lecturer described, step by step, the work of the embalmer from the hour of the death of a person to the moment the body is interred or cremated. It is certain that, as a result of these lectures, the mystery and gruesomeness that is associated with death in the minds of so many persons has been dispelled to a marked degree in California, and that a better understanding of the work of the profession and the laws governing that work has been planted in the minds of the people of the state.

BOARD OF VETERINARY MEDICAL EXAMINERS

As a result of examinations conducted by this board for candidates seeking licenses as practitioners in veterinary medicine in California, six licenses were issued by the board in September. The total number of licentiates operating under the board's jurisdiction at the close of the month was 528.

BOARD OF OPTOMETRY

No change is noted in the number of licentiates operating under the supervision of the State Board of Optometry in September, as compared with the total for August, the number remaining at 1358 as of September 30.

Investigations growing out of complaints filed with the board were conducted in seven cases and three investigations were pending completion at the close of the period under review. No prosecutions were conducted in the courts during the month nor were any licenses suspended or canceled.

A report by Dr. T. A. Brombach, secretary of the Board of Optometry, covering a visual survey of all the pupils of the Oakdale Union High School, as conducted by the optometry division of the University of California in September is, in the opinion of the director, of sufficient importance to command the attention of educators and others throughout the state.

The survey was one of the many splendid results of the participation by various boards of this department in the department's exhibit at the State Fair in Sacramento, August 30 to September 7. The idea for the survey grew out of a request made for the same by J. O. Gossett, principal of the Oakdale Union High School, while that official was a visitor at the exhibit of the Board of Optometry. It is believed to be the first survey of its kind ever conducted on such a large scale by a university faculty.

The survey, designed to determine the influence of the function of vision upon the academic progress of

high school students, was conducted in the high school gymnasium on September 11 and 12 by Professor R. S. Minor, T. A. Brombach, E. A. Coe, F. L. Mason, F. F. Neal and A. R. Reineke, all of the division of optometry, University of California, and J. T. Hobson of Stockton.

A total of 341 students were examined. Of this number, rigid tests with all the most modern instruments known to optometry, revealed 136 were suffering from poor coordination of the eyes which directly interfered with normal accomplishment of studies and would require either immediate or future eye attention. Only 127 were found to be without need or attention. Eleven were discovered to be color blind. Forty-seven were found to be in need of immediate corrective measures. Seventy-eight will probably require later attention.

A part of the survey not exacted of all pupils but conducted in the interests of those engaged in athletic activities constituted the charting of the indirect fields of color perception by use of the Morville perimeter.

As was anticipated, the complete survey revealed many instances of color blindness, latent hyperopia, school myopia, blurred vision of astigmatism and amblyopia. Significant data upon these cases was compiled and recommendations concerning the measures to follow were presented to the school principal by the examiners.

As explained by Professor Minor, the survey was the first of its kind to be conducted by the personnel of the optometry division of the University, and was undertaken, not alone in recognition of the university's obligation to society, but also to demonstrate the existence of faulty eye performance among students of high school rank, and the influence which it may exert upon scholastic progress.

During the course of the survey the county and city superintendents of schools in Stanislaus County expressed a desire to arrange for a visual survey to cover students in all the schools under their jurisdiction.

BOARD OF CHIROPRACTIC EXAMINERS

Issuance of licenses to sixty-nine chiropractors during September brought the total number of licentiates operating under the supervision of this board to 2753 at the close of the month. Investigations conducted by board representatives during the period covered herein totaled thirty-two. Prosecutions were conducted in court in two cases. Convictions were obtained in both instances and in a third case in which prosecution had been started in the previous month. No licenses were canceled or suspended.

This board was created by laws initiated by petition and passed by referendum and is not at this time under the direct supervision of the Department of Professional and Vocational Standards.

BOARD OF OSTEOPATHIC EXAMINERS

The Board of Osteopathic Examiners was created by a referendum vote of the people and is not under the direct administrative supervision of the Department of Professional and Vocational Standards at this time. No report of its activities is, therefore, available.

* * *

Ed. Note.—The director of the California Department of Professional Standards states above that he has no available data concerning the Board of Osteopathic Examiners. To make this report somewhat complete, however, the editor of CALIFORNIA AND WESTERN MEDICINE will quote from the printed Directory of Graduates of Osteopathic Schools holding physicians' and surgeons' licenses, osteopathic licenses, and drugless practitioner licenses of March 3, 1929, and published by the Board of Osteopathic Examiners of the State of California, and which gives the following information:

"Osteopathy was first given legal recognition in California through the passage of a law which became Chapter 99, Statutes of 1901. . . .

"Osteopathic Certificate No. 1 was dated June 22, 1901, and the last certificate issued by this board, No. 884, was dated April 30, 1907. . . .

"The Board of Osteopathic Examiners functioned in the regulation of the practice of osteopathy and the certification of those so licensed until May 1, 1907, when the Medical Practice Act of 1907, designated Chapter 212, Statutes of 1907, became effective. This measure repealed the prior medical and osteopathic acts and provided for the appointment of a composite board to regulate applicants from all schools and the practice of those licensed. This act contained the following provisions: 1. Board made up as follows: 5 members of Medical Society of State of California, 2 members of California Homeopathic Society, 2 members of Eclectic Medical Society, 2 members of Osteopathic Society of State of California. . . . Under this law there were issued 258 certificates to practice osteopathy. . . . This act was repealed by the passage of the present Medical Practice Act, Chapter 354, Statutes of 1913, which became effective August 10, 1913. . . .

"At the general election, November 7, 1922, the people by a majority of 111,956 passed an initiative measure creating a Board of Osteopathic Examiners to carry out the provisions of the existing law regulating the practice of graduates of osteopathic schools. The Osteopathic Board was given full and complete jurisdiction over the graduates of osteopathic colleges. Full text of the Initiative Act and of the Medical Practice Act which was made applicable to the Board of Osteopathic Examiners is printed elsewhere in this directory. . . .

"Total number individuals licensed on osteopathic credentials, 2120; total certificates issued to graduates of osteopathic schools, 2120; total number in good standing March 3, 1928, 1368; number delinquent certificates,* 752.

* This total number delinquents includes deceased.

TWENTY-FIVE YEARS AGO *

EXCERPTS FROM OUR STATE MEDICAL JOURNAL

Vol. III, No. 12, December 1905

From some editorial notes:

Collier's Weekly.—The exposures made by Collier's in its issue for November 4 are astounding. It is shown, through the reproduction of letters, telegrams, contracts, etc., that every newspaper in the country is implicated in the alcoholic nostrum fraud; that our own newspapers are not only bound to silence when the question of nostrums comes along, but that they are forced to do the lobbying for the greatest fraud in the world—the American "patent medicine" . . . The article is too long to reprint, and abstracts from it would give but a poor idea of the actual degradation of our vaunted "free" press. Free? There never were such slaves since the world began . . . There is no doubt in the world that the disgruntled nostrum manufacturers who "work" the medical profession, and who have throttled its medical publications just as effectively as the "patent" medicine men have throttled the newspapers, will join hands with the Proprietary Association in its attacks upon the American Medical Association and upon the medical profession generally. . . . In our own profession we will have no help except from the *Journal of the American Medical Association* and the state journals, for practically all the others are owned by the nostrum men who advertise in them. . . .

Medical Laws.—Why do the various state legislatures enact laws regulating the practice of medicine? If one seriously asks himself this question and studiously searches for the answer, he will find that it is mainly to protect the public against ignorance and

* This column strives to mirror the work and aims of colleagues who bore the brunt of state society work some twenty-five years ago. It is hoped that such presentation will be of interest to both old and recent members.

incompetence by providing for a minimum amount of educational and scientific equipment which must be possessed by those who will treat the sick or injured. . . .

Graft.—Mr. Adams, in *Collier's Weekly*, said in his first paper that he had been warned to discriminate between proprietary medicines and nostrums; that many of the former class were good; but when he came to investigate the matter, he found mighty few "proprietary" medicines in the good class. He was quite right. The only real money-making features of nine-tenths of the proprietary business is graft—graft, pure and simple; just as much graft and the same sort of graft as we find in the business methods of the nostrums advertised to the laity. . . .

Alcoholic Nostrums.—It is almost proverbial that governments advance more slowly than do individuals, and our government is no exception to the rule. Many hundreds of thousands of people in the United States have known for years that a large number of the so-called "patent medicines" advertised and sold to the general public are nothing but bad whisky plus some inert vegetable and coloring matter, and are manufactured and sold simply and solely for the purpose of inducing or supplying a craving for alcohol; but our government has only recently become aware of this fact, officially. . . .

From an article on "An Address on Organization" by Dr. McCormack of Kentucky.

. . . There is hardly an evil in the medical profession today for which the physicians themselves are not responsible. Back of almost every malpractice suit that was ever tried may be found some envious or disgruntled doctor. The degradation of the expert medical witness is almost complete, and is largely, if not entirely, due to envy, hatred and malice. Isolation and comparative ignorance are the causes which have brought about these conditions, and the remedy is plain. . . .

. . . Organization and education promise to remedy the sickness from which we are now suffering. If the physicians of a community can meet each other frequently and become acquainted, can really get to know each other and to help each other, can substitute coöperation for antagonism, they will all be helped and the community will benefit. . . .

From an article on "The Secret Nostrum Evil" by Dr. Frank Billings, Chicago.

I shall make no apology for bringing this subject before this section. Its importance to the profession of medicine and to the public justifies an exposition of the evil now. In no other country has this menace to the welfare of the people and to the best interests of scientific medicine developed as it has with us.

Probably the reason is that other countries, with one or two exceptions, protect the people against frauds in foods, medicines, etc. . . .

From an article on "Medical Laws and the Influences That Mould Them" by Dr. S. D. Van Meter, Denver.

. . . Another defective feature often incorporated in medical laws requiring universal uniform written examination is that of insisting upon certain preliminary education and a diploma of a recognized school as a prerequisite to admission to examination. These requirements are right and just, so far as determining the qualification of applicants is concerned, and no board should, except in rare instances, consider an applicant qualified who does not possess such credentials. Nevertheless, it is a serious mistake to insist upon them as prerequisite to application. Nothing in particular, except the labor of investigation or examination, is saved thereby, while much is lost in the way of sacrifice of prestige with the public and the control of the very class, viz., the irregulars, the very people upon whom medical boards should expend most of their time and energy. . . .

. . . In many states all energy is expended in seeing that no one is licensed unless he possess an extra high standard of qualification, but nothing is done to stop the unlicensed quack, who plies his trade with impunity. . . .

. . . The most potent force that influences medical legislation adversely, and one for which the profession have themselves to blame, is the profound apathy and indifference the majority of its members manifest in matters pertaining to the enactment or amending of these statutes. . . .

From an article on "The Methods Employed in the Eradicating of an Infectious Disease in the Chinese Quarter of San Francisco" by Dr. William C. Hassler, San Francisco.

History: On March 6, 1900, the medical and commercial world of California were startled by the announcement that bubonic plague, that most dreaded of oriental diseases, had gained a foothold on our shores. . . .

. . . The original source of infection in San Francisco can at best be only a matter of conjecture or speculation as to the direct carrier responsible for its conveyance to this country and appearance in this city. . . .

. . . A mass of people numbering more than 10,000 confined within the narrow limits of twelve blocks, many of whom had extensive business interests, not only in Chinatown, but outside the same, as well as the horde on the verge of beggarmdom, gave forth a powerful cry for liberty and confronted the Board of Health with a demand for food for the indigents. . . .

. . . Chinatown has a solid stone floor over its entire area of twelve blocks. . . .

. . . Results: They were the eradication of the most virulent of diseases and a knowledge gained of the proper methods to apply. San Francisco has accomplished that which no other city similarly infected ever did.

From medical society reports:

Alameda County.— . . . Doctor Nusbaumer read a paper on "Quantitative and Qualitative Leukocyte Changes in Some of the More Common Diseases." . . .

Los Angeles County.— . . . The second paper was entitled "The Relation of Our County Medical Association to the Public Health of Los Angeles," by Dr. George H. Kress. Discussion by Drs. Powers, Follenbee, Witherbee, McGarvin, King, and Kress. . . .

San Bernardino County.— . . . Doctor Harris, who was to read a paper at this meeting, not being present, Dr. Woods Hutchinson was called on by Doctor Tyler to deliver a lecture. Doctor Hutchinson's subject was "The Human Chest in Tuberculosis Subjects." Doctor Hutchinson takes the view that the chest in this complaint is more round than flat, the latter view being that of most textbook writers upon this subject. Doctor Hutchinson presented many drawings illustrative of his views. . . .

San Francisco County.— . . . The following list of names for nominees for the twenty-one directors were presented to the society: Doctors L. W. Allen, J. D. Arnold, George Blumer, P. K. Brown, Harold Brunn, C. J. Burnham, F. B. Carpenter, W. F. Cheney, C. M. Cooper, George H. Evans, A. A. Gianinni, H. Gibbons, Jr., A. W. Hewlett, S. J. Hunkin, S. S. Kahn, W. W. Kerr, C. J. Levison, Howard Morrow, W. Ophüls, H. D'APower, J. Rosenstirn, H. A. L. Ryfkogel, A. B. Spaulding, D. Tait, W. I. Terry, W. S. Thorne, H. M. Sherman, P. M. Thomas, P. M. Jones, H. Gunn, J. H. Barbat, F. Dray, A. J. Lartigau, E. M. Wemple, Sr., M. Kibbe, E. Rixford. . . .

Northern District Medical Society.—On November 14, 1905, occurred the annual meeting of the California Northern District Medical Society. A large number of doctors from the northern part of the state attended. . . .

DEPARTMENT OF PUBLIC HEALTH

By W. M. DICKIE, *Director*

The 1930 Poliomyelitis Epidemic.—During the present year, California has suffered an epidemic of acute anterior poliomyelitis, the first outbreak of importance to occur since 1927, during which year 1298 cases were reported within the state. Since the first of January, 1930, to the middle of September, a total of 1110 cases of this disease have been reported in California. The geographical distribution of cases in 1930 shows a wide variation from the distribution of the cases in the 1927 epidemic. In that year the outbreak affected the northern end of the state much more than it did the southern end of the state, while in 1930 the distribution is exactly reversed, most of the cases this year having occurred in the eight counties of southern California. In 1927, out of a total of 1298 cases reported, 353 were in the southern counties referred to and 945 were in the remaining fifty counties of the state. In 1930, from January 1 to the middle of September, out of a total of 1110 cases reported, 935 were in the eight counties of southern California and 175 were in the remaining fifty counties of the state. In 1925, however, when 821 cases were reported in California, the distribution was even, half of the reported cases occurring in southern California and half in northern California.

The 1930 outbreak made its beginning about one month earlier than the 1927 outbreak. In both 1927 and 1930, the disease became epidemic in California before it even made its appearance in epidemic form in other states. In 1927 the disease appeared in Arizona, shortly after its rise in California, swept through the southern middle-western states to the Atlantic, back through the north-central states to the northwestern-Pacific group, Oregon being the last state to suffer an epidemic of this disease in that year. The same course, in part, has been followed by epidemic poliomyelitis during 1930. At the present time, Kansas, Ohio, New York, and other states are undergoing the same experience with epidemic poliomyelitis that California was suffering in August.

There has been no great change in the incidence of the disease in the various age groups in the three California epidemics referred to. It will be noted, however, that in 1930 fewer infants have contracted the disease and more individuals over twenty years of age have contracted it this year than in either 1925 or 1927. It would seem, also, that more cases are now occurring among individuals in the five to nine year age group and fewer among these in the one to four year age group.

The paralytic type of the disease has prevailed during the present year. More than sixty per cent of all cases reported are, presumably, of the paralytic type; about twenty per cent are abortive and about five per cent are of the bulbar and meningitic type. The types of the disease not stated constitute about fifteen per cent of the reported cases.

A study of 220 case histories of epidemic poliomyelitis reported in southern California during June, July and August of this year reveals evidence that the use of convalescent blood serum has been of great value in the treatment of this disease. Of these 220 cases, 109 were treated with serum and 111 received no serum. Complete recovery occurred in 61 of the 109 individuals in whom serum was administered; that is, fifty-six per cent of the individuals who were so treated recovered. Complete recovery occurred in only 26 of the 111 individuals who were not given serum treatment; that is, but twenty-three per cent recovered. Residual paralysis occurred in 23 of the 109 who were given serum—twenty-two per

cent. Residual paralysis occurred in 42 of the 111 who were not given serum treatment—thirty-eight per cent.

Of the 109 cases which received serum treatment, 67 were paralytic, 7 bulbar and meningitic, 29 abortive, and in 6 cases type of involvement is not known. Of the 111 not given serum, 81 cases were of the paralytic type, 4 bulbar and meningitic, 18 abortive, and in 8 cases the type was not stated. Of the 220 cases studied, 108 were male and 112 were female.

Complete recovery occurred in 87 of the 220 cases studied, forty per cent. Residual paralysis occurred in 65 cases, thirty per cent. Residual muscular weakness occurred in 53 cases, twenty-four per cent. Of the recovered cases, the involvements were as follows: 30 paralytic, 44 abortive, 4 bulbar and meningitic, and 9 not stated.

Of the 220 cases studied, 82 were hospitalized, thirty-seven per cent. Sixty-one of the hospitalized cases, seventy-four per cent, were given serum, and 21, twenty-six per cent, did not receive serum treatment. Deaths occurred among three of the 82 hospitalized cases and in nine of the 132 which were not given hospital treatment.

In this group of cases, 15 were multiple cases, occurring within the same household. Cases had occurred previously in the same families with 27 of the 220 cases for which histories have been secured.

Of the 109 which received serum treatment, 19 received the serum on the second day of illness, and of these 19, 16 made complete recoveries. Of the 20 which received the serum on the third day of illness, 12 made complete recoveries. As is to be expected, recovery occurs more often when the serum is administered early in the course of the disease. Dr. George Draper emphasizes this point well in the following statement:

"From the standpoint of laboratory demonstration and growing clinical experience it would seem that so far the only logical method of specific treatment of this disease is with the serum of convalescents. The success of the method, however, rests primarily upon the early recognition of the disease. It is for this reason that physicians everywhere should spread the gospel that acute epidemic poliomyelitis is neither a nervous nor orthopedic disease. It is an acute infection which has a definite period of varying length, during which there is a general somatic reaction from which the tissues of the central nervous system are definitely excluded. This phase of the disease may be its only expression and is the period in which treatment with convalescent serum is effective. The chances of successfully protecting the tissues of the central nervous system with convalescent serum diminish rapidly with the hours."

SUMMARY

1. The 1930 epidemic of acute poliomyelitis, January 1 to the middle of September, has brought the highest incidence of the disease ever recorded in California during a like period of time, 1108 cases.

2. Eighty-four per cent (933) of the reported cases occurred in the eight counties of southern California, most of them in Los Angeles and vicinity.

3. The incidence of the disease in various age groups has not changed greatly in 1930, but fewer infants under one year of age and more adults over twenty years of age have contracted the disease in 1930 than during preceding years.

4. The administration of convalescent blood serum and prompt hospitalization constitute the two measures which were productive of the best results in bringing about recovery.

5. Thirty per cent of the cases receiving serum treatment showed complete recovery and thirty-nine of the hospitalized cases recovered.

CALIFORNIA BOARD OF MEDICAL EXAMINERS

By CHARLES B. PINKHAM, M. D.
Secretary of the Board

On October 27, 1930, Governor C. C. Young announced the following appointments on the Board of Medical Examiners:

Clark L. Abbott, M. D., Oakland, vice self, for a term expiring August 10, 1934.

William H. Geistweit, Jr., M. D., San Diego, vice self, for a term expiring August 10, 1934.

H. Miller Robertson, M. D., Santa Ana, vice James L. Maupin, M. D., deceased, for a term expiring August 10, 1931.

C. E. Schoff, M. D., Sacramento, vice self, term expiring August 10, 1934.

At the annual meeting of the Board of Medical Examiners held in Sacramento, October 20 to 24, inclusive, 1930, the following officers were reelected for the ensuing year: P. T. Phillips, M. D., president; William R. Molony, M. D., vice-president; Charles B. Pinkham, M. D., secretary-treasurer.

The legal calendar comprised citations of twenty-three licentiates called before the Board for various offenses under Section 14 of the Medical Practice Act and final action was taken as follows:

Archibald A. Atkinson, M. D., Sacramento (narcotic violation), revoked October 22, 1930.

George H. Bland, M. D., Fresno (narcotic violation), was on October 21, 1930, placed on probation for a period of five years, during which time he is not to apply for a federal narcotic permit or have narcotics in his possession.

James Terrell Brown, M. D., Los Angeles, revoked October 22, 1930, for violating terms of his probation.

Samuel D. Cotterell, M. D., Los Angeles, was on October 22, 1930, revoked, based on narcotic charges.

Clarence E. Edwards, M. D., San Francisco, was on October 21, 1930, revoked, based on alleged illegal operation.

Walter C. Hoyt, M. D., Gridley, was on October 22, 1930, revoked, based on evidence of habitual intemperance.

Dwight D. Johnson, M. D., Grass Valley, was on October 22, 1930, placed on probation for a period of three years, during which time he is not to apply for or have a federal narcotic permit or have narcotics in his possession.

John R. Leadsworth, M. D., Los Angeles, was on October 21, 1930, suspended from practice for a period of one year for aiding and abetting an unlicensed practitioner. This charge was based upon the allegation that Doctor Leadsworth had purchased the California state rights for the use of a machine called "Tricho," assertedly operating on the x-ray principle, which was leased to various beauty parlors and by them used for the removal of superfluous hair, causing permanent disfigurement, according to complaints filed in the office of the Board. ("News Items," June, 1930.)

Robert H. McLauchlan, M. D., Santa Cruz, was on October 22, 1930, suspended from practice for a period of one year for aiding and abetting an unlicensed practitioner.

James J. Murray, M. D., Los Angeles (narcotic violation) was on October 21, 1930, placed on probation for a period of five years, during which time he was not to have or apply for a federal alcohol or narcotic permit or have either in his possession.

Ernest Scosseria, M. D., San Francisco (narcotic violation), was on October 21, 1930, revoked.

Newton B. Siler, M. D., Los Angeles, who on February 2, 1927, was placed on probation for five years without alcohol or narcotics, was on October 22, 1930,

found guilty of violation of the terms of his probation and his license revoked.

Fred H. Van Tassell, M. D., Berkeley (narcotic conviction), was on October 21, 1930, suspended from practice for a period of one year.

William V. Whitmore, M. D., formerly of Los Angeles, more recently Tucson, Arizona, was on October 23, 1930, revoked, based upon federal conviction of violation of the Harrison Narcotic Act, followed by incarceration at McNeil's Island Penitentiary.

Thomas O. Greig, M. D., Berkeley, revoked October 24, 1929, for habitual intemperance, was the only successful applicant for restoration of license. On October 22, 1930, Doctor Greig's license was restored and he was placed on five years' probation, during which time he is not to apply for or have an alcohol permit.

The Legal Department reported the status of the following appeals from the judgment of the Board, pending in the various courts of this state:

Pearl J. Anderson, M. D., vs. Board. Board's revocation sustained by Superior Judge Goodell.

Francis J. Bold, M. D., vs. Board (Wilhite case). Board sustained by Superior Judge Leon Yankwich of Los Angeles.

Francis J. Bold, M. D., vs. Board (de la Cuesta case), now under submission in the Superior Court of Los Angeles County.

Oscar W. de Vaughn (Oakland) vs. Board, now under submission before Superior Judge Fitzpatrick of San Francisco.

Roy S. Lanterman vs. Board. Briefs filed and submitted to Los Angeles Superior Court.

Frank M. Moran vs. Board. Superior Court sustained the Board. No notice of appeal filed.

Thomas J. Randall (Los Angeles) vs. Board. Pending decision in District Court of Appeal of Los Angeles.

Eugene Rinaldo vs. Board. (Alleged fraudulent credentials.) Revoked July 9, 1924. Board reversed July 3, 1928. Appeal pending decision in District Court of Appeal, Los Angeles.

Eugene Rinaldo vs. Board (Writ of Probation filed December 17, 1928.) Still pending final decision.

Fred B. Tapley vs. Board, Marysville; Board sustained by Superior Judge Johnson. Appeal filed October 3, 1930. Pending in District Court of Appeal.

Paul Traxler vs. Board, Los Angeles. Board sustained in Superior Court. Notice of appeal served.

* * *

NEWS ITEMS, DECEMBER, 1930

"Although a surgeon has been found not guilty on the charge of murder as the result of an illegal operation, his license may nevertheless be revoked by the Board of Medical Examiners for unprofessional and unethical conduct in performing the operation, according to a recent decision given by Superior Judge Leon R. Yankwich of Los Angeles. . . . Judge Yankwich's decision upheld the Board of Medical Examiners of California in revoking on July 30, 1930, the license of Dr. Francis James Bold of Whittier. The matter came before Judge Yankwich in the form of a petition for a writ of review directed against the Board of Medical Examiners. . . . In the petition before Judge Yankwich, the doctor's attorney claimed that the doctor was being placed twice in jeopardy and that his acquittal was a complete vindication of the charge. Judge Yankwich replied that the revocation of the license was not another punishment; but rather was aimed at the protection of society and the medical profession. He cited many cases in which two consequences, one criminal and one civil, are made to flow from one act. The rule in these cases, according to the opinion, is that acquittal on a criminal charge does not prevent exaction of the other penalty. The judge also referred to cases in which attorneys had been disbarred upon charges of which they had been previously acquitted by a jury" (*The Critic of Critics*, Los Angeles, September 30, 1930).

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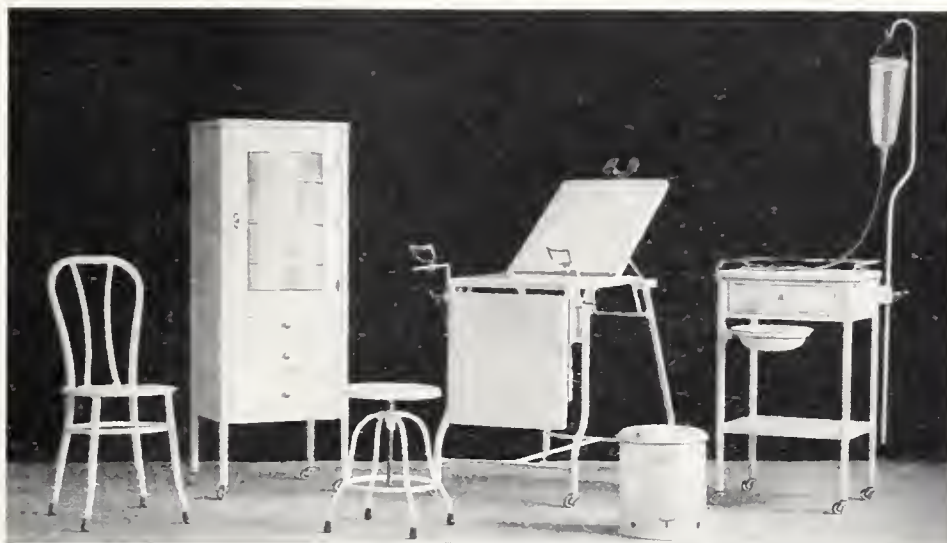
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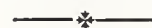
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TRUTH ABOUT MEDICINES

(Continued from Page 30)

as water germander or wood garlic. For at least seventeen years, Stroopal has been exploited in a small way from Chicago. Recently, Stroopal seems to have been advertised under the name of the Stroopal Company, 101 Belmont Avenue, Chicago. On August 13, the postal authorities issued a fraud order against the Stroopal Company and notified the Chicago postmaster to return all letters addressed to the Stroopal Company to the original senders.—*Journal of the American Medical Association*, October 4, 1930,

More Misbranded Nostrums.—The following products have been the subject of prosecution by the Food and Drug Administration of the United States Department of Agriculture which enforces the Federal Food and Drugs Act: Schieffelin Cold and Grippe Tablets (Schieffelin & Company), containing

(Continued on Page 40)

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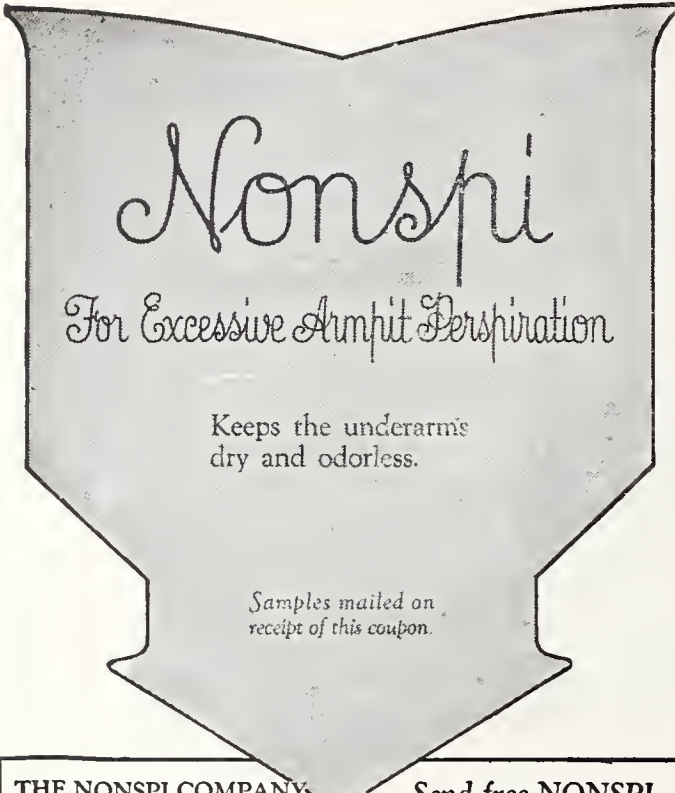
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TRUTH ABOUT MEDICINES

(Continued from Page 37)

acetanilid, cinchona alkaloids, red pepper, camphor, aloin and extracts of plant drugs, including a laxative drug. Mendenhall's Chill and Fever Tonic (J. C. Mendenhall Medicine Company), consisting essentially of quinin sulphate, a laxative plant drug extractive, glycerin, alcohol, sugar, water, and a trace of benzoate of soda. Goodwin's Cold Breakers (Senoret Chemical Company), tablets containing acetanilid, aloin, strychnin, and a laxative plant drug. Sternox (Sterno Corporation), essentially petrolatum with small amounts of camphor, menthol, turpentine, thyme, and eucalyptus oils.—*Journal of the American Association*, October 4, 1930, p. 1038.

The Pavia "Cancer Cure."—During the past year, editors of newspapers and magazines have received

from one Burroughs F. Perry of 221 Shoreland Arcade, Miami, Florida, a piece of mimeographed publicity material headed, "Cancer and Goiter Cure Is Asserted." The statement is to the effect that one Charles Pavia has discovered a wonderful cure for cancer and goiter! Further, according to Mr. Perry's material, the Pavia formula "feeds the cancer germs, satisfies it and destroys it by self-satisfaction." The main exploiter of Pavia's remedy seems to be one R. B. Fisher, whose stationery announces him to be an attorney; he, too, does business from 221 Shoreland Arcade, Miami. At the request of Pavia and Fisher, Dr. Charles D. Cleghorn, president of the Dade County (Miami, Florida) Medical Association, checked up on cases treated with the Pavia remedy and reported that in three cases examined the treatment had been quite without effect. Doctor Cleghorn reports that the description of the formula, as

(Continued on Page 44)



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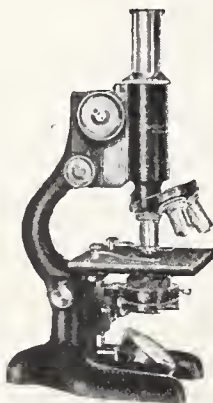
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TRUTH ABOUT MEDICINES

(Continued from Page 40)

given him, was "vegetable oils, camphor, menthol, and turpentine in a base of animal fats." Chemists of the American Medical Association Chemical Laboratory reported that the remedy was a brownish-yellow ointment with a terebinthinate odor, indicating the presence of turpentine, menthol, and camphor. It

may well be that Mr. Pavia is sincere in his exploitation of the remedy. However, a worthless cancer remedy sincerely exploited may prove just as fatal as the crudest of cancer cure swindles.—*Journal of the American Medical Association*, October 11, 1930, p. 1116.

Oral Use of Ovarian Products in Menopause.—Rational as ovarian therapy may theoretically appear to be in some conditions, the actual results are rarely

(Continued on Page 47)

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TRUTH ABOUT MEDICINES

(Continued from Page 44)

striking and often nil to the careful observer. Extensive clinical experience has failed to establish the value of the desiccated preparations administered orally. The Council on Pharmacy and Chemistry has omitted all desiccated ovary preparations for oral administration because long-extended clinical use has failed to demonstrate the efficacy of the marketed brands.—*Journal of the American Medical Association*, October 11, 1930, p. 1119.

Hammond's Mixture.—The formula for "Hammond's mixture" is: pepsin (scale) 12; wood charcoal, U. S. P., 24; potassium bromid, 64; water to make 250. Pepsin is seldom indicated, because the gastric juice usually contains sufficient pepsin for gastric digestion. Charcoal has long been administered in cases of flatulence, the prescribers evidently losing sight of the fact that when thoroughly wet it loses its property of absorbing gases. In view of these two facts, it would appear that the prescription would likely do no more than would a solution of potassium bromid itself.—*Journal of the American Medical Association*, October 11, 1930, p. 1119.

Basy Bread.—About twelve years ago Basy Bread was sold under such claims as "Three Slices a Day Will Drive the Fat Away." At that time the manufacturer stated that it was made from coarse-ground, hard whole wheat, preserved and sweetened with ground figs and containing vinegar, salt, and water. At that time Dr. Harvey W. Wiley summed up the case against this nostrum thus: "There is one way in which Basy Bread will reduce; that is, don't eat any of it, nor much of any other kind." The joker in the Basy Bread exploitation lay in the fact that the person who was using Basy Bread was told that she must greatly diminish the amount of bread, potatoes, oils, fats, and sugars in the diet while using the

"bread." Quite naturally, the obese could have reduced just as effectively had they followed the instructions that came with the Basy Bread and thrown the "bread" itself in the garbage can. During the past year the American Institute of Baking analyzed the Basy Bread that is found on the market. This analysis showed that the energy value of Basy Bread is more than equal to that of average graham bread and is almost equal to that of white bread. Obviously Doctor Wiley's statement of many years ago is just as applicable to Basy Bread today as it was when it was written. For all practical purposes, however, the obese who reduce by the Basy Bread method are being "kidded by experts."—*Journal of the American Medical Association*, October 18, 1930, p. 1194.

More Misbranded Nostrums.—The following products have been the subject of prosecution by the Food and Drug Administration of the United States Department of Agriculture which enforces the Federal Food and Drugs Act: Red Caps (Campbell Laboratories), capsules containing antipyrin, asafetida, podophyllin, red pepper, starch, and a trace of alkaloids. Gasidal (Gasidal Company), consisting essentially of baking soda, magnesium carbonate, bismuth subnitrate, and starch, flavored with peppermint. Stout's Cold Tablets (D. C. Leo & Company), containing acetanilid, alkaloids of nux vomica, and extracts of plant drugs, including a laxative drug. Flu-Caps (Murray C. Kalis & Company), capsules containing red pepper, ginger, aloin, acetanilid, asafetida, camphor, epsom salt and a laxative plant drug. Kidder's Cold and Grippe Tablets (Samuel Kidder & Company), containing phenacetin, salol, caffeine, and citric acid. Klein's Cold and Grippe Capsules (Brewer & Company), containing acetanilid, cinchona alkaloids, phenolphthalein, aloin, sugar, and starch.—*Journal of the American Medical Association*, October 18, 1930, p. 1194.

(Continued on Page 51)

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TRUTH ABOUT MEDICINES

(Continued from Page 47)

The Advertising of the Dentifrice.—The early part of the twentieth century may be interesting historically for the fact that it witnessed the apotheosis of the tooth brush, the tooth paste, and the mouth wash. So far as mouth washes are concerned, their virtues may lie in a slight astringency or alkalinity, in the mildly antiseptic influence they exert for a brief period, or more probably in the fact that they contain enough water to provide a lavage appealing to the organoleptic senses. "Halitosis" gave to Listerine a sales impulse that no other mouth wash has ever been able to equal. The fact that the combination of substances included in Listerine is relatively ineffective and will not cure halitosis did not lessen the sales impulse. Recently, the Food and Drug Administration has cast a critical eye over the claims for antiseptic value made for various mouth washes and gargles. It is currently reported that the owners of all these bringers of gold are rushing hither and thither to the laboratories searching for substances that really are antiseptics and that can be added to their concoctions without changing taste or color—the important qualities—that the claims may be justified. Recently, dentifrices have been widely exploited with various claims. A half-dozen assorted chemists and the commissioner of health of New York assert that low surface tension means that a tooth paste will penetrate better between the teeth. The claim of special value because of low surface tension in connection with the selling of any tooth paste is 100 per cent hokum. Any mixture of soap, glycerin and chalk, such as is available in many tooth pastes, would be equally endowed with a low surface tension. The Council on Dental Therapeutics of the American Dental Association is now making efforts to secure

(Continued on Page 56)



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"The housing and equipment should be sufficient to permit all essential technical procedures to be properly carried out."

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"The director of an approved clinical laboratory should be a graduate of an acceptable college or university of recognized standing, indicating proper educational attainments. He shall have specialized in clinical pathology, bacteriology, pathology, chemistry or other allied subjects, for at least three years. He must be a man of good standing in his profession."

"The director shall be on full time, or have definite hours of attendance, devoting the major part of his time to the supervision of the laboratory work."

"The director may make diagnoses only when he is a licensed graduate of medicine, has specialized in clinical pathology for at least three years, is reasonably familiar with the manifestation of disease in the patient, and knows laboratory work sufficiently well to direct and supervise reports."

"The director may have assistants, responsible to him. All their reports, bacteriologic, hematologic, biochemical, serologic and pathologic should be made to the director."

RECORDS

"Indexed records of all examinations should be kept. Every specimen submitted to the laboratory should have appended pertinent clinical data."

PUBLICITY

"Publicity of an approved laboratory should be directed only to physicians either through bulletins or through recognized technical journals, and should be limited to statements of fact, as the name, address, telephone number, names and titles of the director, and other responsible personnel, fields of work covered, office hours, directions for sending specimens, etc., and should not contain misleading statements. Only the names of those rendering regular service to the laboratory should appear on letterheads or other form of publicity."

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" * * There should be no dividing of fees or rebating between the laboratory or its director and any physician, corporate body or group. * * *"*

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TRUTH ABOUT MEDICINES

(Continued from Page 51)

restriction of the claims for dentifrices, and physicians should do all that they can to aid the American Dental Association in this campaign.—*Journal of The American Medical Association*, October 25, 1930, p. 1267.

The Story of the Christmas Seal.—Every year millions of Christmas seals are sold in this country to control and prevent tuberculosis. They have become a symbol of the great war that is being waged against an ancient, preventable disease. But in 1904 the Christmas seal originated in a small way to give a chance for health to a group of tuberculous children in a foreign country.

In that year a children's hospital was needed in Copenhagen, Denmark. A postal clerk in that city named Einar Holboell heard of this and conceived the idea that stamps, especially designed to decorate Christmas letters and packages, could be made to finance the cost of the building. His enthusiasm won for him the endorsement of the Danish royal family, and the first Christmas seal was designed and placed on sale in the post offices. The good citizens of Denmark purchased enough of them to insure for the sick children the best medical and nursing care available.

A pioneer in the field of social service in America received a letter from his mother country bearing one of the bright-colored little stamps. His name was Jacob Riis and, his curiosity aroused by this new decoration, he inquired about its purpose. The possibilities of its use in the United States impressed him. He wrote an article that was published in the *Outlook* in which he described what the stamp had achieved in Denmark.

In that article, Miss Emily P. Bissell of Wilmington, Delaware, found the solution of her own problem, namely, how to raise \$3000 for a tuberculosis

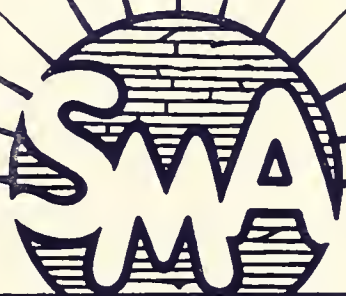
pavilion in her state. She organized the first sale of Christmas seals in the United States and as a result the pavilion was built. In 1908 Miss Bissell was able to induce the authorities of the American Red Cross to undertake a nation-wide sale of tuberculosis Christmas stamps. Women's clubs, religious bodies, and local Red Cross chapters assisted in the campaign. From then on until 1920 the Red Cross conducted the sale of the seals.

From 1907 to 1910 the National Tuberculosis Association had been organizing its warfare against the disease with the support of foremost scientists, but with little funds. To strengthen the organizations' work, the American Red Cross joined with it in the Christmas seal sale. The partnership between these two great welfare bodies lasted for ten years. Then, in 1920, it was dissolved because the American Red Cross desired to continue its annual roll call, begun in the years of the Great War, and it did not wish to appeal to the public for funds twice a year. Since that time only the double-barred cross, emblem of the tuberculosis movement, has appeared on Christmas seals.

Through the power of the Christmas seal, state after state was gradually organized to attack tuberculosis with a scientific program. The state organizations entered the larger cities and counties and formed local associations. Together, led by the national body, they have brought into existence nearly all of the present-day community machinery for combating tuberculosis.

The little stamps help to control the sources of infection especially to children, to educate everyone in health habits and to prevent economic loss due to the death of producers. This year the National Tuberculosis Association and its affiliated organization will hold the twenty-first sale of Christmas seals throughout the country.—Helena L. Williams, in *The New England Journal of Medicine*, December 1928.

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|  | No modification is necessary for normal full term infants. |  |
|  | Resembles breast milk both physically and chemically. |  |
|  | Simple for the mother to prepare. |  |
|  | It gives excellent nutritional results in most cases, and these results are obtained more simply and more quickly. |  |

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